331

NATIONAL COOPERATIVE
HIGHWAY RESEARCH PROGRAM REPORT **331**

STRATEGIC PLANNING AND MANAGEMENT GUIDELINES FOR TRANSPORTATION AGENCIES

TRANSPORTATION RESEARCH BOARD
NATIONAL RESEARCH COUNCIL

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT **331**

Jame

STRATEGIC PLANNING AND MANAGEMENT GUIDELINES FOR TRANSPORTATION AGENCIES

GENE R. TYNDALL, JOHN CAMERON and CHIP TAGGART
Ernst & Young
Washington, D.C.

RESEARCH SPONSORED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS IN COOPERATION WITH THE FEDERAL HIGHWAY ADMINISTRATION

AREAS OF INTEREST

Administration
Planning
Forecasting
Finance
(Highway Transportation, Public Transit, Rail Transportation, Air Transportation, Other)

TRANSPORTATION RESEARCH BOARD
NATIONAL RESEARCH COUNCIL
WASHINGTON, D. C. DECEMBER 1990

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

In recognition of these needs, the highway administrators of the American Association of State Highway and Transportation Officials initiated in 1962 an objective national highway research program employing modern scientific techniques. This program is supported on a continuing basis by funds from participating member states of the Association and it receives the full cooperation and support of the Federal Highway Administration, United States Department of Transportation.

The Transportation Research Board of the National Research Council was requested by the Association to administer the research program because of the Board's recognized objectivity and understanding of modern research practices. The Board is uniquely suited for this purpose as: it maintains an extensive committee structure from which authorities on any highway transportation subject may be drawn; it possesses avenues of communications and cooperation with federal, state and local governmental agencies, universities, and industry; its relationship to the National Research Council is an insurance of objectivity; it maintains a full-time research correlation staff of specialists in highway transportation matters to bring the findings of research directly to those who are in a position to use them.

The program is developed on the basis of research needs identified by chief administrators of the highway and transportation departments and by committees of AASHTO. Each year, specific areas of research needs to be included in the program are proposed to the National Research Council and the Board by the American Association of State Highway and Transportation Officials. Research projects to fulfill these needs are defined by the Board, and qualified research agencies are selected from those that have submitted proposals. Administration and surveillance of research contracts are the responsibilities of the National Research Council and the Transportation Research Board.

The needs for highway research are many, and the National Cooperative Highway Research Program can make significant contributions to the solution of highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement rather than to substitute for or duplicate other highway research programs.

NCHRP REPORT 331

Project 8-28 FY '87

ISSN 0077-5614

ISBN 0-309-04854-0

L. C. Catalog Card No. 90-71379

Price $9.00

NOTICE

The project that is the subject of this report was a part of the National Cooperative Highway Research Program conducted by the Transportation Research Board with the approval of the Governing Board of the National Research Council. Such approval reflects the Governing Board's judgment that the program concerned is of national importance and appropriate with respect to both the purposes and resources of the National Research Council.

The members of the technical committee selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and, while they have been accepted as appropriate by the technical committee, they are not necessarily those of the Transportation Research Board, the National Research Council, the American Association of State Highway and Transportation officials, or the Federal Highway Administration, U.S. Department of Transportation.

Each report is reviewed and accepted for publication by the technical committee according to procedures established and monitored by the Transportation Research Board Executive Committee and the Governing Board of the National Research Council.

Special Notice

The Transportation Research Board, the National Research Council, the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the individual states participating in the National Cooperative Highway Research Program do not endorse products or manufacturers. Trade or manufacturers names appear herein solely because they are considered essential to the object of this report.

Published reports of the

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

are available from:

Transportation Research Board
National Research Council
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

Printed in the United States of America

FOREWORD

By Staff
Transportation Research Board

This report contains descriptions of the concepts and status of strategic planning and management, particularly within publicly funded transportation agencies. Guidance on the application and implementation of strategic planning and management is given. Senior managers of publicly funded transportation agencies, as well as planners and other managers, will find the report of interest.

In the 1960's and 1970's, major U.S. corporations developed strategic planning as a tool to systematically assess the probable impacts of increasing competition and growth—as well as to accommodate social, environmental, and public policy pressures—on the viability of their business. Over time, many corporations expanded strategic planning to strategic management to include improved daily management of operations in areas, such as resource allocation, motivational and performance review, accountability, recognition of contingencies, and continuous organizational feedback. Strategic management, then, is the process of *articulating a future vision of accomplishment for an organization and planning, directing, and controlling the organization's entire range of activities to work toward the desired state or position.* (Strategic *planning* becomes an integral part of the strategic management process.) Thus, the strategic management approach is characterized throughout the corporation as a "widespread strategic thinking capability."

By 1980, strategic approaches also had begun to be applied in a few public transportation agencies such as state departments of transportation and public transit authorities. Consequently, the time seemed appropriate for research to determine the status of strategic planning and management in public sector transportation agencies, to develop an understanding of those approaches that are applicable and effective in public agencies, and to identify potential pitfalls. Research could provide transportation agencies with guidelines to support the successful application of strategic management. Thus, research was initiated under NCHRP Project 8-28, "Strategic Planning and Management for Transportation Agencies," and was performed by the firm of Ernst & Young, Washington, D.C., in association with The Ferguson Group.

The research evaluated the current status of strategic planning and management in publicly funded transportation agencies and the applicability of approaches taken by U.S. corporations to this environment. It focused on identifying the need for strategic management, enchancing key elements of the strategic management process and integrating them into a functioning system, and using and refining the strategic management system. As such, the results of this research will provide transportation agencies with guidance to support the implementation of strategic management in their own situation.

CONTENTS

ACKNOWLEDGMENTS

The research reported herein was performed under NCHRP Project 8-28 by Ernst & Young (successor to Ernst & Whinney), Washington, D.C., and The Ferguson Group, Washington, D.C. Ernst & Young was the principal contractor for the study, and The Ferguson Group was under subcontract to Ernst & Young.

Gene R. Tyndall, partner in charge of Ernst & Young's National Transportation and Logistics Group, was the principal investigator. The other authors include: John Cameron, partner, and Chip Taggart, senior manager, Ernst & Young. The following individuals were members of an expert panel which reviewed interim results: Duane Berentson, Secretary of Transportation, Washington State Department of Transportation; Richard P. Braun, Director, Center for Transportation Studies, University of Minnesota; John T. Doolittle, Jr., Management and Operations Consulting Services, Mystic, Connecticut; John Elkins, president and CEO, The Naisbitt Group, Washington, D.C.; and Arnold Judson, Gray, Judson & Howard, Cambridge, Massachusetts; and Robert Neuschel, Northwestern University, Evanston, Illinois.

The work was done under the general supervision of Gene R. Tyndall and John Cameron, Ernst & Young. Work by the Ferguson Group was done under the supervision of Mr. James F. Ferguson.

STRATEGIC PLANNING AND MANAGEMENT GUIDELINES FOR TRANSPORTATION AGENCIES

SUMMARY

Strategic management is the process of articulating a future vision of accomplishment for an organization and planning, directing, and controlling the organization's entire range of activities to work toward the desired state or position. (Strategic *planning* activities may be viewed as one part of a strategic management process.) Its foundation lies in basic, sound management principles that have been articulated by business, industry, and government leaders for years.

Strategic management differs from traditional management practices that ask, "How do we keep doing what we are doing, only do it better?" Strategic management focuses instead on an overall vision of where the organization should be heading, i.e., what it plans to accomplish and how it can get it accomplished. It provides for the involvement of the entire organization in managing its people, processes, and products toward successful accomplishment of its goals and objectives. In this regard, strategic management is broader in its appeal and of more relevance to senior management.

The principal objectives of NCHRP Project 8-28 were to: (1) assess the status of strategic planning and management in publicly funded transportation agencies, (2) determine the general applicability of strategic management to these organizations, and (3) provide recommendations and guidelines to assist individual agencies to initiate or strengthen their strategic management activities.

This report addresses the following principal research areas: (1) the current strategic planning and management environment for publicly funded transportation agencies, (2) the definition and components of strategic management, (3) the research findings and conclusions relative to implementing and/or maintaining strategic management, and (4) the guidelines for successfully institutionalizing strategic management in publicly funded transportation agencies.

Overall, it is clear that the strategic management process and its benefits are present and understood in less than a dozen state departments of transportation. Many of the remainder—plus many transit, airport, port authorities, and other publicly funded transportation agencies—seem to have insufficient interest in, or understanding of, strategic management. Because of the day-to-day pressures and stress on the dedicated public officials in these agencies, it is relatively rare for senior executives to make the commitment necessary to initiate and fully support a meaningful strategic management process.

Current Environment

The internal and external environments in which publicly funded transportation agencies must plan and function have experienced rapid change in recent years. Among the factors contributing to this climate of change are economics, demographics, transportation service and use demand, increased transportation providers, shifts in the federal attitude toward financial support, essential completion of the Interstate Highway System, and trend towards consolidating public transportation modes into umbrella agencies.

As the result of the changes taking place on a continual basis, publicly funded transportation agencies are faced with numerous threats and opportunities. To position themselves to survive and, hopefully, thrive in an ever-changing environment, the agencies have been forced to abandon the "business as usual" perspective that has traditionally dominated public transportation organizations. Instead, they have begun to focus and depend more concretely on their capabilities to plan and act quickly and decisively.

Planning in publicly funded transportation agencies evolved through the 1970s from what was essentially program or project planning to long-range, multiyear planning institutionalized through the FHWA "3C" process to attempts to consider possible future events and plan strategically to influence them. Strategic planning was widely adopted, and numerous plans consisting of voluminous data and extensive strategies were developed. However, the endemic problem with many strategic planning efforts was that there was often little, if any, connection between the plans and the day-to-day operations and budgets of the agency. Further, the plans were frequently viewed as suspect by the line managers who were responsible for implementing the plans because they were developed by planning staffs with sometimes limited or no operational experience. Many strategic plans, then, were never implemented.

In 1982, the Pennsylvania Department of Transportation began a process which marked a fundamental change in strategic planning in publicly funded transportation agencies and which has become known as *strategic management.* Basically, the Department established an iterative process that linked its strategic planning to day-to-day management and operations. Since its initiation, other publicly funded transportation agencies have pursued strategic management as a means to deal effectively with the continually changing internal and external environments in which they must function.

Definition and Components

There is no consensus definition for strategic management, even among its practitioners in the public or private sectors. Throughout industry and government, definitions and practices vary widely. Each organization typically develops its own version and thereby refers to strategic management in terms of its own culture, leadership styles, frequency of crises, environments, and executive acceptance and interests. However, there are commonly accepted practices and critical elements. The definition noted earlier was adopted for use in this research project.

Strategic management is an interactive and ongoing process consisting minimally of the following fundamental components: mission statement (including goals and objectives), environmental scan, strategy development, action plan development, resource allocation, and performance measurement.

If these components and the processes needed to support, review, and adjust them on a continual basis are in place, the organization has an opportunity to maintain a sound strategic management program and to benefit substantially from it. Without any one of these components, or without the essential support processes, the effort will likely fail.

Findings and Conclusions

In the course of this project, the planning and management approaches of 11 publicly funded transportation agencies were studied, as were those of four private sector corporations. Additionally, significant documents relevant to strategic planning and strategic management were reviewed, and a committee of experts was established to review and comment on the project's interim findings. The findings of the project are discussed in the following paragraphs:

1. *Establishment (or Enhancement) of a Strategic Management Process.* In most of the case-study organizations, strategic management was usually the outgrowth of a process that had been formally or informally put in place to address a crisis, e.g., the very real danger of the Pennsylvania DOT not obtaining sufficient funding from the legislature and of having the agency disbanded as an umbrella transportation agency; the portent of markedly lower finances available to the Port Authority of New York and New Jersey as the result

of the fiscal crisis that enveloped New York; a major change in the role and responsibility of the Regional Transportation Authority (Chicago). Understandably, then, early efforts were not called strategic management; they were crisis management processes with little initial consideration given their longer term institutionalization.

A major finding in this area was that the establishment of strategic management in an organization—to the point that it is institutionalized as an effective and efficient process—requires several years of effort. Strategic management is not like other organizational processes that can be designed and implemented within a matter of months and then function effectively thereafter. A key factor differentiating strategic management from other planning, management, and administrative processes is that institutionalizing strategic management involves substantively changing an organization's attitudes about nearly everything it does and the way it is done—a time-consuming process. Additionally, most agencies that now have strategic management efforts in place or underway did not start out to institute strategic management. Consequently, when the effort is formalized, many essential elements are missing and must be put in place before the process can evolve further.

These critical elements may be placed into one of three major categories: (a) participant elements (chief administrative officer, senior management, staff managers, line managers, process "champion"); (b) process elements (environmental scanning, goal and objective setting, planning and budgeting, performance monitoring, information collection and dissemination); (c) product elements (mission statement, goals and objectives, organizational strategies, properly defined businesses, component (business) strategies, component (business) action plans, program budgets, performance measures, SWOT (strengths, weaknesses, opportunities, threats) analyses, rewards tied to performance).

Without (a) the *participants,* who play various roles in initiating, developing and sustaining the process, (b) the basic management *processes* themselves, and (c) the *products* produced by or in support of strategic management, a smoothly functioning strategic management process is unlikely.

The substantially advanced state of strategic management in some of the case-study organizations, as well as reviews of surveys of state transportation agencies and other literature, demonstrate that establishing the process is not inherently inhibited in publicly funded transportation agencies. This is true even though the environment for publicly funded transportation agencies differs markedly from that of private corporations. For example: (a) Profitability is not the driving motivation in most cases. (b) The measurement of performance in the public sector is not as straightforward, and the criteria for success are different. (c) Expectations regarding public benefit are different. (d) The public sector primarily provides services and products which the private sector cannot or will not provide. (e) Decision-making is more complex and politically motivated in the public sector. (f) A sense of urgency is not prevalent. (g) Public agency managers are more risk averse than are their corporate counterparts. (h) Funding/financial mechanisms are very different in the public sector. (i) Public agencies normally have more layers of management, and they also generally have more limited spans of control. (j) Public agencies have a greater number of direct external influences on their activities.

Overall, the criticality of strategic management in a public agency may be less because the agency's ultimate survival probably is not dependent on it. However, as noted, this does not inhibit the application of strategic management principles and processes, nor obviate their potential benefit in the public sector environment. Where the will to establish strategic management initiatives is strong, roadblocks and other difficulties tend to be overcome.

2. *Participation In a Strategic Management Process.* To have any hope of success, strategic management demands extensive participation in the process by all levels of management. However, the research also showed that a commitment to strategic management and a willingness to participate are not sufficient to guarantee a high degree of effectiveness and efficiency of the activity. What is also required is that the participation be in an appropriate role in a clearly understood framework. In some of the case-study agencies, there was considerable confusion about the roles and responsibilities of various elements and personnel in the strategic management process. To the extent that roles and responsibilities were unclear, the strategic management effort suffered.

3. *Organizational Structure of Participants.* The organizational structure of the case-study participants was reviewed to determine (a) if the overall structure of an agency appeared to either facilitate or inhibit the institution and maintenance of strategic management, and (b) the impact that the location of the responsibility for strategic management in an agency has on success or failure. The principal findings in this area were:

a. There is no common organizational structure within which strategic management activities are necessarily initiated, or which appear to be guarantors of success. However, the organizations whose strategic management processes were most advanced tended to be more decentralized than those just initiating strategic management or whose efforts were moving slowly.

b. Although the location of responsibility for "managing" the strategic management function varied widely among the case-study organizations, the lack of uniformity does not appear to impact the success or failure of the effort. More important than the organizational location of the strategic management function is whether or not a single point of process management responsibility could be identified at all. In those organizations where such a point could be identified, the process worked better. Where a focal point could not be identified, or where the focal point changed frequently, confusion existed over whom to look to for guidance.

c. Large, full-time strategic management staffs have not been a prerequisite for success. Although a number of the case-study organizations have formal strategic management staffs, most do not have formal units or any full-time staff devoted to the process. Further, in those organizations with full-time staff assigned to strategic management, the size of the staff is relatively small, i.e., typically 1 to 3 individuals. The differences in approach in this area do not have a noticeable impact on the effectiveness or efficiency of the strategic management process in place.

4. *Management Processes In-Place.* The research team reviewed the basic management processes that are in-place to support strategic management as well as the actual processes by which the case-study organizations perform the function. The objective of this review was to ascertain whether one process or group of processes was more indicative of likely success than another. The findings were that:

a. There is no commonality among the basic management processes of the case-study organizations in terms of their steps or timing, nor was there a common strategic management process. Most were tailored to the specific needs of the implementing agency.

b. The case-study organizations most experienced in implementing or operating under strategic management generally have a plan for planning which sets out the roles and responsibilities of each element of the organization and establishes specific steps to be followed within specified time periods.

c. The strategic management process in most agencies changes continually as the organization becomes more comfortable with the activity and as experience with the process surfaces opportunities for refinement.

d. The time horizon for the strategic management process often is relatively short, in most cases, 3 to 5 years.

e. Published strategic plans are not viewed as essential to strategic management.

f. Strategic management efforts often are heavily information dependent.

Strategic Management Guidelines

The guidelines provided in the final report for publicly funded transportation agencies interested in evolving their current management systems into a strategic management system are the composite results of case-study findings, the collective experience of the research team, the written material reviewed, and the comments of reviewers throughout the course of the project.

Because no two organizations are exactly alike in their internal and external environments, scope of activities, management issues, structure, existing systems already in place, or culture, the guidelines were developed to be applicable to the widest range of organizations. Accordingly, the guidelines focus primarily on what must be done to establish and maintain a strategic management process and leave decisions as to how specific actions should be accomplished to individuals intimately familiar with the situation at hand.

The guidelines recognize that there are four distinct and chronological stages in the evolution of a strategic management process, and they address the actions necessary to accomplish each of these stages. The four stages in the implementation and maintenance of a strategic management process are: (1) identification of the need for a formal strategic management process and identification of specific weaknesses in the current planning and management system; (2) the establishment or enhancement of key strategic management elements in the participant, process, or product categories; (3) integration of the key elements into a functioning system; and (4) ongoing use and refinement of the strategic management system.

The guidelines for each stage and the objectives of each guideline are highlighted, as follows:

PRIMARY STAGES/GUIDELINES	OBJECTIVES
Stage I. Identifying the Need for Strategic Management	
A. Determine the current status of strategic management in the agency.	To assess (a) the extent to which strategic management is already in place, (b) the potential buy-in of the chief administrative officer and other senior managers, (c) whether it would be appropriate to introduce basic management changes at this time, and (d) what probable actions might be undertaken to improve strategic management processes.
Stage II. Establishment or Enhancement of Key Strategic Management Elements	
B. Define the agency's businesses.	To establish a clear and proper definition of the agency's businesses based on an accurate understanding of the present and a realistic vision of the future.
C. Develop plans for implementing strategic management initiatives.	To provide a comprehensive course of action to move the agency from the existing management system to the establishment or enhancement of critical strategic management elements.
Stage III. Integration of the Key Elements into a Functioning System	
D. Ensure that the agency mission statement and goal structure are in place.	To establish a clearly understood and articulated mission statement for the agency, supplemented by goals and specific objectives for each major operating unit.
E. Obtain chief administrative officer and senior management commitment to the strategic management process.	To ensure an active leadership role by the chief administrative officer and senior management and thereby institutionalize the strategic management processes in dealing with day-to-day operational matters.
F. Establish a clearly understood division of responsibility for strategic management implementation, including the selection of implementation managers or facilitators.	To provide guidance to all managers and organizational units as to their roles and responsibilities in implementing the strategic management process.

G. Develop an accurate information base and maintain its timeliness.	To work toward the evolution of a consistent agency-wide information system which provides timely and accurate information for management decision-making.
Stage IV. Ongoing Use and Refinement of the Strategic Management System	
H. Monitor the strategic management system.	To provide continuous feedback so that senior management will know where adjustments are needed and to ensure that strategic management initiatives stay in step with the management needs of the agency.
I. Develop a reward and recognition program.	To encourage exemplary performance from individuals and organizational units.

Fundamentally, the guidelines point out that any organization seriously interested in establishing, strengthening, or maintaining a strategic management system must have the following: (1) active chief executive commitment to and visible leadership of the institution of strategic management in the organization; (2) strong and continual commitment to strategic management by senior and middle managers; (3) a clear and articulated agency mission supplemented by specific agency goals and objectives; (4) a rigorous "closed-loop" planning and control process with sufficient retained flexibility to respond to changing environments and situations; (5) clearly and properly defined agency "businesses"; (6) clearly understood division of responsibility for the various aspects of strategic management among the participating organizational elements of the agency; (7) the location of operational planning and execution at the line level; (8) the availability of timely and accurate information upon which to base key management decisions; (9) continual analysis and evaluation of the external and internal environments and appropriate adjustments to existing plans; (10) restriction of the strategic management time horizon to a maximum of 5 years; (11) a strong basis in reality as opposed to "wishful thinking"; (12) appropriate linkage between individual and unit performance targets and actual performance; (13) manager patience and perseverance.

A strategic management checklist, which is included in Appendix B of the report, has been designed to assist organizations to determine, in great detail, precisely how close or how far away they are to having a sound strategic management process.

There are many acceptable approaches to good strategic management. The essential ingredients are future vision, involvement of all managers, top-level commitment, integration of existing management systems and processes, and focused planning of activities. Perhaps the biggest challenge of all is to institutionalize a strategic way of thinking—a challenge that requires more than the enunciation of goals and objectives, the careful delineation of roles and responsibilities, the establishment of rewards and recognitions, or the other key elements of strategic management. In effect, this challenge requires leadership.

With the renewed emphasis from the U.S. Department of Transportation on national transportation policy development, on reevaluating priorities, and on technical and managerial innovation, strategic thinking (i.e., strategic management), indeed, offers new opportunities and challenges. One of the most significant of these is for the managers of transportation infrastructure and operating systems to become actively involved in the process of articulating a future vision of accomplishment for their agencies. This report provides the guidelines to establish such a management process in an effective and meaningful way.

CHAPTER ONE

INTRODUCTION

The primary objective of this research is to provide recommendations and guidelines for publicly funded transportation agencies in the area of strategic planning and management. Using a case-study approach, the research team assessed the status of strategic management in publicly funded agencies and the further applicability of strategic management principles within the public sector.

This chapter presents an overview of the publicly funded transportation environment into which the concepts and application of strategic planning and management have been introduced over the last decade or so. It also defines strategic management and describes the essential components of the process and how they relate to each other.

BACKGROUND

Period of Rapid Change

In recent years, publicly funded transportation agencies have not been afforded the operating luxury that accompanies "business as usual" because, for these agencies, business has been anything but usual.

A number of factors—internal and external, within and beyond the control or influence of publicly funded transportation agencies—have created a climate of rapid change that has forced the agencies to confront head-on substantial threats to their ability to fulfill their missions as well as substantial opportunities to markedly improve or expand the transportation services they provide.

Among the most critical factors contributing to this climate of rapid change are economics, demographics, service use and demand, competition for public funds, competition from other transportation service providers, philosophical shifts in the federal attitude toward support for publicly funded transportation, essential completion of the Interstate Highway System, and increasing consolidation of transportation modes into umbrella agencies. A brief discussion of each of these factors follows.

Economics. Maintenance, operations, and construction costs in the transportation sector have continued to increase at a rate which far exceeds the rate at which revenues are increasing. By any reasonable measure, the needs of the transportation infrastructure far exceed the nation's ability to meet them using conventional sources of revenue and traditional funding mechanisms. For example, highway maintenance needs have substantially outstripped available resources, and many state highway agencies have had to postpone capital expansion in order to maintain systems at minimum acceptable levels. In this and other program areas, the imbalance between costs and revenues provides a continuous challenge for transportation agencies to establish lean, effective, and efficient organizations that can set realistic priorities and manage in a changed and changing environment.

Demographics. Americans always have been, and will likely continue to be, a highly mobile society. In the past decade, major shifts in population among and within states have occurred with regularity. For example, Americans have shown a considerable willingness, and in some cases a desire, to live and work in already congested areas. This intensifies infrastructure and mobility problems and demands continual attention to solving transportation problems.

Additionally, there have been equally marked shifts in the socioeconomic profile of the population throughout the country. These shifts both determine and influence transportation needs in the areas in which they are occurring. For example, the Texas State Department of Highways and Public Transportation has recognized these shifts and has focused greater resources on the needs of its rapidly growing major cities. However, determining where to focus resources is complicated in most urban areas, because shifts to suburban work locations have evolved. Again, the strains on the transportation infrastructure and on the overall mobility of the population are evidenced through substantial reverse commuting and intersuburban commuting patterns.

Service Use and Demand. The use of, and demand for, publicly provided transportation services, whether they be mass transit services in cities or urban and rural roads and highways, have increased dramatically. Furthermore, the use and demand patterns shift constantly as the population shifts and the economy changes.

Competition for Public Funds. Publicly funded transportation agencies must compete for nondedicated funds on several levels. First, they must compete for federal transportation funds that are not distributed on a formula basis; periodically, they must compete for more favorable formulas. Secondly, they must compete for funds that are also sought by other public agencies. Finally, if they are local or regional agencies, they must compete with similar agencies in the state for state funds. The fact that competition for funds exists means that total funding levels are always uncertain over a period of time.

Competition from Other Transportation Service Providers. For public mass transportation agencies in particular, publicly provided transportation services no longer constitute a monopoly of transportation services in many areas; private providers are competing with these agencies. Moreover, in some parts of the country, publicly funded transportation agencies are competing with each other. An example of this situation exists in metropolitan Washington, D.C., where local areas served by bus service provided by the regional transportation authority have established local and commuter bus services of their own.

Philosophical Shifts in the Federal Attitude Toward Support for Publicly Funded Transportation. During this decade, there has been a shift in the attitude of the federal administration toward the level of funding support it should provide for transportation at the state and local levels. This shift in attitude is illustrated by a senior administration official who asked, "Why should the citizens of Charlotte, North Carolina, have to pay for public transportation for the citizens of New York City?" Reflective of this attitude is the fact that federal operating support for locally provided transportation services has decreased 27 percent in the last 6 years, and federal capital grants fell by 21 percent from 1986 to 1987.

Essential Completion of the Interstate Highway System. With the Federal Interstate Highway System nearing completion, there is considerable uncertainty about the level of highway funding that will be available to the states in the future. Efforts now underway, such as the 2020 initiative, are attempting to address this issue. In 1987–1988, 65 public forums were held throughout the United States; their results were compiled at a national meeting in the fall of 1988. Subsequently, results addressing future highway and transportation needs and responses were presented to congress. However, given the status and maturity of the infrastructure, needs are enormous and funding uncertainty is likely to persist for several years to come.

Increasing Consolidation of Transportation Modes into Umbrella Agencies. The recent trend toward consolidating traditionally separate modal agencies (e.g., mass transit, airports, ports, and state highway departments) into single umbrella agencies has made planning more extensive and more difficult because it requires balancing competing modal interests in a single organization. These factors, in some combination, affect publicly funded transportation agencies throughout the country—whether they are large or small, single or multiple purpose, statewide, regional, or local.

Strategic Planning

The basic challenge presented to publicly funded transportation agencies by the existing climate of rapid change is how to best position themselves to handle challenges and threats and take advantage of the opportunities available. Opportunities exist on many fronts—new and emerging technology in telecommunications, in-car communications, advanced vehicle monitoring, and new materials, to name a few. Visionary thinking and planning are needed more and more to identify these opportunities and take advantage of them.

Efforts to forecast and plan for the future have been part of practically every organization's activities since the organization was established. In some cases, these activities have been informal; in others, they have been and still are formal and highly structured.

Initially, planning in publicly funded transportation agencies focused on answering the question, "What will we do in this particular time frame?" The time frame could be 1, 5, 10, 20, or more years. The answer to the question was usually determined by the budget (actual or estimated) and an assessment of where more of the same was needed. Thus, planning was almost exclusively capital investment oriented.

In the 1970s, publicly funded transportation agencies and other organizations began to ask, "What will likely happen in the future, what should we do in light of it, and how might we influence its outcome?" The notion of thinking strategically about an agency's future and future programs/projects was thereby enunciated. This approach differed from traditional multiyear, long-range transportation planning which, incidentally, had been institutionalized through the FHWA "3C" (comprehensive, coordinative, continuing) planning process. The new approach added a perspective for carefully identifying the internal and external influences that were likely to impact the plan's success. It also focused on the ways and means available to the agency to realize and monitor progress towards its plan objectives. In this way, the approach was substantially different from the traditional long-range transportation planning that supported capital investment decisions.

The location and structure of, formality of, and responsibility for the strategic planning function in publicly funded transportation agencies varied widely among agencies. Yet, in numerous cases, volumes of data were collected and analyzed and "strategic plans" were developed that charted the agencies' courses into the future.

The problems experienced with early strategic planning efforts—problems that in some cases persist—derive from the fact that there was frequently little, if any, relationship between the strategic plans that had been developed and the day-to-day operations and budgets of the agencies. Without this critical linkage, strategic planning and its products often amounted to little more than paper exercises. At the same time, however, the strategic planning process facilitated the identification of key issues and provided a forum for senior management to think strategically about its agency's programs. In this regard, the process was distinguishable from traditional capital investment planning.

Unfortunately, strategic and other plans sometimes were suspect because often they were formulated by a group of staff planners who, because they had limited or no operating knowledge or experience, did not enjoy the respect of the line units that had to implement the plans. Consequently, it was not unusual for the plans to be largely ignored. This phenomenon was and is to be expected when key managers have no real involvement in plan development or are expected to execute strategies on which they were not consulted.

In 1982, the Pennsylvania Department of Transportation (PennDOT) began a process which came to be known in industry circles as *strategic management.* Since this initial effort by PennDOT, numerous publicly funded transportation agencies have begun strategic management programs or have at least formalized their strategic management processes.

STRATEGIC MANAGEMENT—DEFINITION AND COMPONENTS

Definition of Strategic Management

There has been some difficulty, even among practitioners, in agreeing on a cogent definition of strategic management. It is clear in both industry and government that the definitions and practices vary widely, and there seems to be no universally accepted or commonly understood description of the strategic management process. Each organization typically develops its own version and thereby refers to strategic management in terms of its own culture, leadership styles, frequency of crises, environments, and executive acceptance and interests. For example, Gray (*1*), in drawing a distinction between strategic planning and management, noted that the latter "... treats strategic thinking as a pervasive aspect of running a business and regards strategic planning as an instrument around which all other control systems—budgeting, information, compensation, organization—can be integrated." Stein-Hudson (*2*) noted that strategic planning is a management process which is used "... to develop strategic thinking and to foster strategic decision making by leaders and, in turn, by line managers and departments responsible for turning agency goals into results." Meyer (*3*) defined strategic management as "... the process by which managers understand organizational goals; examine the future threats to, and opportunities for, an organization; identify strategies for dealing with these threats and opportunities; ensure organizational capability to implement these strategies; and continually monitor the entire process to provide direction and support for accomplishing the strategic management objectives." Nutt and Backoff (*4*) indicate that strategic management is a broadening of strategic planning. They say that strategic management "... merges short- and long-term planning by seeking immediate actions that simultaneously address short- and long-range issues in a dynamic, evolving environment. The process integrates planning with the ongoing management of an organization by removing barriers that treat planning as a staff function, insulated from managerial action."

Processes or activities are sometimes best defined by their characteristics or results. This is particularly true of emerging concepts and processes that are more subjective than objective in their application. A leading U.S. corporation—one of the case-study organizations—claims that strategic management is very difficult to implement, partly because it is a particularly difficult concept to describe and understand. It defines a "strategically managed corporation" as possessing the following five characteristics: (1) a well-understood and agreed-upon strategic framework for planning, tied to a strategically focused organizational structure; (2) widespread strategic-thinking capability; (3) a planning process that requires negotiation of objectives based on reasonable alternatives; (4) a performance review system that focuses top management's attention on key problems and opportunity areas without struggling through an in-depth review of every business unit's strategy every year; and (5) a motivational system and management values that support strategy.

The foregoing is a cogent and enlightened description of the characteristics of strategic management. Corporate documents further call strategic management "... fundamental to the planning of [our] future ... [and focused] on the long-term performance potentials and problems facing the corporation." This viewpoint is more and more prevalent in business and industry.

The Connecticut Department of Transportation, in initiating its strategic planning process in 1985, searched the literature, attended seminars, and exchanged ideas with other planners in order to tailor the process to the agency. Executive management settled on the following definition, characteristics, and benefits for strategic planning, which they believe aided internal understanding and acceptance: "... a *management process* that helps an organization *make critical decisions* about where to *target its efforts* and how to *allocate its resources*. ..." [Its central thrust is] "... to develop strategic thinking, and ... to foster strategic decision-making by leaders, and, in turn, by line managers and offices responsible for turning agency goals into results. ..." [It differs from traditional forms of planning because] "... [s]trategies determine *general directions*, whereas plans ultimately result in specific products. ..." [It offers the DOT] "... a *structured process* for looking at the *future* in the *context of the pressures* confronting all transportation agencies today. ..." [And] "... [i]t is a tool for making targeted, selective choices for focusing attention on several critical issues. ..."

The Department adopted the motto "off the paper and into the flow" to connote the management aspects of the process.

The New York State Department of Transportation has developed, documented, and implemented a strategic management process referred to as Goal-Oriented Management. The rationale cited is "... to create a management style that combines a clear sense of purpose with direct lines of authority and clear performance goals at each level of management." This process includes four principal components: (1) an improved orientation towards goals as a means to focus service delivery, (2) various strategic planning activities, (3) performance measures on a unit and individual basis, and (4) direct connection to the budgeting process. In the authors' judgment, this process would appear to capture the primary characteristics of strategic management.

For purposes of this report, the following working definition is suggested: Strategic management is *the process of articulating a future vision of accomplishment for an organization and planning, directing, and controlling the organization's entire range of activities to work toward the desired state or position.* In this regard, strategic *planning* activities may be viewed as one part of a strategic management process.

Strategic management is "strategic" in the sense that it (1) is *comprehensive* in involving and affecting the essential elements of an organization; (2) is *purposeful* in attempting to progress from the current situation to another (improved) one; (3) encourages the members of an organization to view what they are doing with *detachment and perspective;* and (4) recognizes that *change* usually will occur over long periods of time (2 to 4 years), e.g., it is *visionary* in terms of describing goals and paths to achieving them. Strategic management is "management" in the sense that the accepted elements of good management practices (as enunciated in business, industry, and government for years) are present, i.e., flexibility, allocating resources, providing for accountability, monitoring results, adjusting plans, and so on. Furthermore, the strategic management process is *dynamic.* In fact, the measurement system provides for reviewing and evaluating plans and progress and for revising plans, preferably at least annually.

While a major purpose of strategic management is to successfully manage change, the process also results in certain interim products. For example, in the *strategic planning* part of the process, goals and objectives are developed or revised, key issues are identified, and corporate as well as program strategies are developed. Also, the *environmental scan* may continuously produce significant deliverables throughout the cycle. *Implementation* produces operations plans and achievements; *feedback* produces performance measures. These results or deliverables should be and usually are documented and often are published, at least internally.

Components of the Strategic Management Process

The basic components of the strategic management process are interactive and ongoing, i.e., an organization is never completely finished with any step, only with one iteration of it. The components feed each other. They also involve continuous monitoring and modification so that each organizational unit is working toward the same desired end within a constantly changing environment, both external and internal.

Within the process of strategic management, the organization focuses on (1) defining precisely the mission, goals, and objectives of the organization and its parts if it is multibusiness; (2) developing agency-wide (or corporate) strategies and program strategies; (3) developing action plans to achieve the goals and objectives as efficiently and effectively as possible; (4) providing resources necessary to implement the plans; (5) establishing responsibility and accountability for implementing the plan; (6) instituting performance measurement systems to monitor and report progress; and (7) making provision for incentives (recognition and rewards) to fulfill individual and unit responsibilities. Figure 1 shows an overview of the strategic planning and management cycle. As can be seen, the focus differs from traditional capital investment planning in a transportation agency.

Indeed, there are significant differences between the components of strategic management and the "conventional" or "traditional" strategy or business planning processes of industry and government. One difference is that strategic management is focused on an overall vision of where the organization should be heading, i.e., what it plans to accomplish and how it can get there. It influences agency planning and operations through the development of strategies, action plans, and performance monitoring to achieve the desired results. Conventional planning processes, on the other hand, are typically program or project oriented. That is, they focus on individual program or project plans. However, as Bryson and Einsweiler (*5*) point out, "... the two may be complementary. In fact, there may be little difference between the best comprehensive planning and strategic planning if the agency doing the comprehensive planning is tied directly to key governmental decision makers." They note that traditional comprehensive planning by its nature has a narrower agenda and thus less appeal and use to senior management. Other key differences, especially in publicly funded transportation agencies, include the following: (1) Strategic management provides for a substantially greater consideration of external environmental influences. (2) Strategic management is contingent in that it recognizes the existence of alternative paths—paths that may change as events change and in fact may alter the ultimate product(s). (3) Strategic management provides an orientation towards shaping aggressively an organization's own future, questioning its issues and opportunities and creating a "vision of success" (Bryson and Roering (*6*)). (4) Strategic management provides for integration and involvement of the entire organization—across levels and units—in managing the organization toward successful accomplishment of its mission. (5) Strategic management is oriented toward its mission and service/product outputs, which, in turn, guide its inputs or resources needed. (6) Strategic management is based on continuous (or at least periodic) modifications, permitted by ongoing monitoring of internal and external environments and the organization's accomplishments. (7) Strategic management requires continuous feedback from all levels of the organization concerning all aspects of its environments, plans, and operations.

Strategic planning and management is also different from traditional budgeting processes, which have been a necessary part of agency and corporate operations for decades. Budgeting, of course, is annual or biennial and in a public agency is normally required by legislation or executive order. In any case, it is required in order to subject the proposed expenditures and activities of public agencies to legitimate public scrutiny. The more sophisticated budgeting processes may contain some of the elements of strategic management, such as goal structuring, resource allocation, and performance measurement. Yet, the traditional budgeting process falls far short of strategic planning or management in that it is focused on balancing projected expenditures for continued (and expanded) programs against forecasted agency revenues. It captures little of the environmental scan, the strategy development, or the detailed operations-plan-development characteristics of strategic planning and management processes.

Yet some agencies, such as the Arizona Department of Transportation, have linked the budgeting process to strategic planning/management in a methodology they call the (5-year) Strategic Budget Process. This linkage allows for the prioritization and allocation of construction and operating funds based on the strategic evaluation of operating program issues vis-a-vis construction requirements. Successfully applied, the intent is to more systematically and thoughtfully allocate available resources to the desired objective and results. Recognized benefits are that (1) management takes a longer view of budgetary issues, (2) more levels of management interact on the budget, (3) there is an increased impact on the allocation of resources, and (4) there is a more intense and repeated focus on key strategic issues.

With these points in mind, one can describe strategic management as containing the following fundamental and essential components: mission statement (including goals and objectives), environmental scan, strategy development, action plan development, resource allocation, and performance measurement. These components are described below.

Mission Statement. Great organizations are driven by a leader's sense of vision—an idea of what might be accomplished. For the benefit of the organization, its stockholders, and the public, this vision is normally expressed in terms of a mission. The mission statement (including goals and objectives) specifies the organization's basic function and responsibility—why it exists, what it is striving to achieve, and who its customers are.

An organization normally has a sense of its mission, at least historically or as established by charter or statute. The development and careful expression of the organization's mission statement take place at the initiation of the strategic management process. The mission statement should reflect understanding of the organization's traditional purpose as well as its current purpose. As the organization examines its internal and external environments and decides what its future should be, the mission

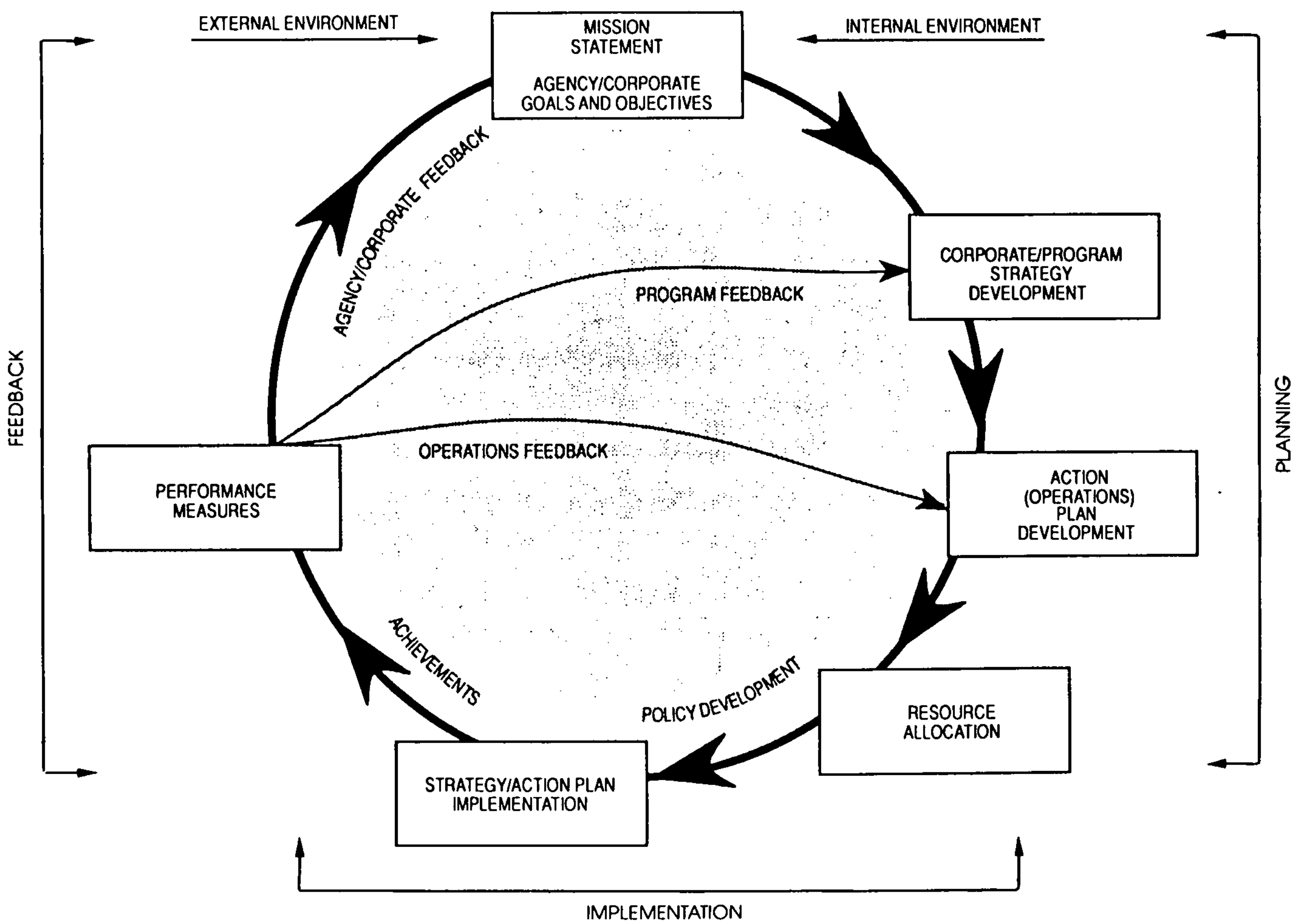


Figure 1. Strategic planning and management cycle.

statement (and supporting goals and objectives statements) may be modified to reflect accurately this new vision of the organization.

There is little agreement in either industry practice or the literature regarding the definition and hierarchy of mission statements, goals, objectives, strategies, and performance measures. Each firm or agency tends to adopt the convention with which it is comfortable. One such approach, which is rather commonly employed in the private and public sectors, uses the following definitions: *mission*—broad statement of purpose or function of the agency; *goals*—statements of ends the agency wants to achieve but that are not necessarily achievable in the near term; *objectives*—specific things the agency plans to accomplish for each goal with measurable, quantifiable results, and *what* is being planned; *strategies*—specific statements of *how* each objective is to be achieved, often including who is responsible for its accomplishment, in what time frame, and by what indicators of success.

The New York State Department of Transportation, as part of its Goal-Oriented Management process, "... which attempts to adapt management and planning tools used in the private sector to the unique circumstances of the public sector . . .", makes the following interesting distinction between strategic goals and operational goals: (1) Strategic goals have a fundamental and pervasive impact on the organization's performance of its mission; most departmental goals are strategic goals. (2) Operational goals are generally important but are not directly and fundamentally related to the organization's mission. Noting as a matter of practical application that the distinction between the two is not clear, departmental guidelines provide these characteristics:

STRATEGIC	OPERATIONAL
• Fundamental change in definition of organization's role or the way it does business	• Concerned with how to improve what is already being done
• Long-term impact	• Day-to-day focus
• Important to upper management	• Not a priority of upper management

The primary rationale for the distinction is in determining priorities and the level of management attention in the New York State DOT.

In this document, strategy development has been delineated as a separate component of the strategic management process, and goal structuring has been included along with the mission statement.

A very important prerequisite of mission, goal, and objective structuring is defining the business units in a multibusiness agency or organization. While the agency or company typically has a single mission, it is not uncommon for it to have numerous goals and objectives, some specific to its diverse business units. These business units may be modal, as in a typical state DOT, or functional, as in defining and delimiting the major types of activities. (Of course, one of the difficulties in goal structuring is to eliminate or avoid conflicting goals and objectives, an activity which is made even more difficult in organizations with diverse business units.) Clearly, if the business units are not defined properly, it is very difficult to develop a well-focused strategy for each business unit.

Environmental Scan. This process identifies the strengths and weaknesses of the organization's internal environment and the opportunities and threats presented by the external environment in which the organization operates. (Often it is referred to as an analysis of strengths, weaknesses, opportunities, and threats: SWOT.) In order to develop effective strategies to accomplish the goals and objectives of the agency, the external environment must be considered. This includes the organization's customers/users/clients, its competitors, its funding sources, the community at large, and the opportunities and threats associated with them. These external factors constantly must be monitored, updated, explored, and checked for reasonableness; as changes in the external environment are identified, their implications for the organization must be evaluated. Strategies are then developed in full cognizance of the external environment.

Similarly, strategic management requires sensitivity to the characteristics of the internal environment or the organization itself. The internal analysis must focus on the strengths and weaknesses of the organization—who actually does what, how, and how well. The organization must be honest in viewing its own operations, and it must be willing to identify and address problem areas and limitations. It also should assess its capabilities to meet its objectives and accommodate change. This process, like all those of strategic management, is ongoing; the organization must be sensitive to, and must respond to, its own situation and changes in order to operate and progress effectively.

Organizations vary widely in their approach to the environmental scan. Some, such as the Chicago Regional Transportation Authority, have invested enormous resources in assessing the potential external and internal influences on their organizations. Others, such as the Washington State Department of Transportation, complete their external and internal analyses simply through interviews with the department's senior management, resulting in a document that denotes management's beliefs of what would be required in the future. Some corporations have developed environmental scan "checklists," which may require detailed analysis in some areas and a simple confirmation of conditions in another. While each approach may be appropriate to the given situation, it is important that periodic reassessment of the approaches occur.

Strategy Development. Strategies are statements of how the organization will work toward achieving its goals and objectives in terms of its processes, products, personnel, resources, and organizational structure. With an improved understanding of the organization's internal and external environments (from the environmental scan), options for achieving the organization's goals and objectives are developed. These must consider current realities and limitations as well as explore ways to modify or adjust them when considering possible future scenarios. The set of options should reflect various perspectives in terms of the organization's ability to change itself and to influence its externalities. This is the organization's opportunity to examine its desired future and its commitment thereto, as well as its perceived limitations, and to decide what it is willing to commit in order to accomplish its goals and objectives. In particular, through the development of meaningful strategies, the organization must articulate the policies it endorses, the processes and procedures it uses, the products and services it provides, the personnel it employs, the resources it commits, and the way it is organized to fulfill its mission.

An important aspect of strategy development is contingency planning. Although the focus is on how to move the firm or agency forward, managers must be ever mindful of the fact that plans sometimes cannot be achieved or often require midstream adjustment. Therefore, in strategy development it pays to continuously ask "What if . . .?", so that the consequences of not fulfilling strategies can be evaluated. This, in turn, requires an understanding and recognition of the assumptions on which strategies are based. This will enable the managers to assess the consequences of plans potentially falling short of their objectives and to provide contingencies for possible negative effects.

Action Plan Development. The action plan (or operations plan) consists of a set of specific, accomplishable, detailed steps implementing a particular strategy. For each strategy, the plan includes a schedule of work elements, completion dates, and a delineation of responsibility to specific units for each step of the plan. Scheduled reviews are also included so that actions are implemented as planned, or implementation problems are identified and addressed as they arise.

The New York State DOT's Goals-Oriented Management program collapses several strategic management steps into a major component of its strategic management process—the Action Plan. The Plan's components include strategy development, action steps, schedule, and performance measures. (Roles and responsibilities are identified as another component altogether.) The action steps are seen as the sequence of events that will lead to accomplishing the goals and objectives. They are simply stated (one sentence), and a target completion date is given for each.

The specification and implementation of the action plan is what drives the organization toward its goal. Action plans represent the translation of goals, objectives, and strategies into day-to-day activities. The successful accomplishment of these provides the incremental progress necessary to realize the strategic vision for the organization.

The action plan, like all other components of strategic management, will change in response to changes in the organization's internal and external environments. Without periodic review and revision, an action plan becomes ineffectual as inevitable changes in the environments occur. In other words, because the internal and external environments are not static, neither is an effective action plan.

Action plans, if properly developed through a strategic management process, are the positive results of the vision of senior management and the input from environmental scans, with direction from corporate and program strategies. Presumably, cost, scope, or site changes at this stage in the process—so close to day-to-day operations—will be minor.

Resource Allocation. All resources—human, financial, and material—must be allocated in accordance with the organization's goals and objectives, strategies, and action plans. These may include costs of plant, materials, and wages (which should be budgeted), or meeting the requirements of action plan implementation. Resources must be readily available at the requisite levels for timely and successful implementation of the action plans, and contingencies must be provided to address changes that occur. This involves basing allocation decisions on corporate strategies, objectives, and organizational priorities; understanding and addressing each unit's resource requirements; and planning for contingencies in order to address changes that are bound to occur. As noted earlier, planning for contingencies is very important because it is inevitable that in some cases strategies will not work as planned. Managers must be prepared by understanding underlying assumptions of strategic plans and how changes in plans might affect resource allocation.

The strategic management process should also be strongly linked to the budgeting process of the agency. It should direct the allocation of resources in accordance with corporate and program strategies, which establish priorities for agency operations. Indeed, resource allocation must reflect the focus exhibited by the strategic plan and its actions. Clearly, action plans cannot be accomplished without adequate resources that are assigned according to priority and expended in an efficient and effective manner.

Performance Measurement. Performance measurement is the process of tracking implementation of the action plan, the concurrent tracking of progress towards the accomplishment of agency goals and objectives, and the indication of changes needed. One agency, the New York State DOT, assesses progress for each goal against the following measures of results: Quantity—How much was accomplished? Quality—How well was it accomplished? Timeliness—Was it accomplished when it was supposed to be? Cost—How much did it cost in time, materials, and other resources?

Performance monitoring clearly delineates what each unit in the organization is expected to contribute and how each one is doing. This includes specific performance measures that are consistently reported on and reviewed, incentives and disincentives linked to performance, and clearly delineated accountability for individual or unit accomplishment. (On the other hand, performance in the budgeting process refers primarily to the appropriate draw-down of funds, e.g., the appropriate rate of expenditures for the appropriate activities and programs. In recent years, more sophisticated budgets have identified "performance indicators" or "performance measures" which attempt to tie fund expenditures to specific activities. While these approaches aid accountability and increase public understanding of budget expenditures, they lack the comprehensiveness and strategy-driven initiatives of strategic planning and management processes.)

An important aspect of the performance measurement component of strategic management is the provision of incentives for excellence and concomitant disincentives for failing to meet objectives. Long applied in the private sector to help differentiate superior performers from adequate ones, this provision necessitates a fair and relatively comprehensive performance measurement program, including well-conceived performance indicators. This, in turn, requires an equitable means of quantification and measurement for each indicator. In the public sector, considerably less flexibility exists for incentives based on performance—especially monetary ones, because public agencies tend to either equally reward all employees in good standing or provide a fairly narrow band of "merit" increases for superior performance. Considerable effort has been expended in "merit" programs in public education, and most remain very controversial. There are other incentives, however, which may be provided for superior performance of individuals or units in a publicly financed transportation agency. Public agency managers face a significant challenge to develop and apply them—a challenge which in many ways surpasses the effort required of private managers to reward performance.

Performance measurement is critical because it reveals whether and how well various units of the organization are fulfilling their specified responsibilities. (In this context, it should be used to evaluate unit and individual managers' performance.) It also reveals how effective the action plan is in realizing the accomplishment of goals and objectives. Moreover, it reports what activities or processes require change or refinement.

Further definition of the essential strategic management components may be found in Appendix A to this report. This appendix is a partial copy of a TRB-developed outline of its video presentation entitled "Strategic Planning for State and Local Transportation Agencies." The presentation includes a strategic planning checklist of seven elements that are somewhat analogous to, but less comprehensive than, the components of strategic management described above.

The TRB checklist is complementary to the definitions offered herein. For each element, a series of key questions is noted. These questions help to describe the element or associated activity, or imply the intent, content, and products of that element. They may be used in conjunction with the above description of strategic management components. (The fact that the labels are not exactly the same should be of little concern to the practitioner. Each of the key questions in the TRB checklist fits one or more of the strategic management components.)

RESEARCH APPROACH

Given the growing number of publicly financed transportation agencies undertaking strategic management efforts subsequent to PennDOT's early experience and those expressing an interest in the process, the National Cooperative Highway Research Program initiated this research project with the following objectives: (1) to determine the state of the art of strategic management in publicly financed transportation agencies and other organizations; (2) to determine the applicability of strategic management to publicly financed transportation agencies in general; (3) to provide recommendations and guidelines for publicly financed transportation agencies that are considering beginning strategic management processes or advancing the processes they already have underway.

To meet the research objectives, the research team formed an advisory committee. This committee consisted of individuals who have been extensively involved in transportation operations and planning and in strategic planning or management for a number of years. Its purpose was to advise the project team during the course of the study and to make available to the team the considerable strategic planning and management experience of the members.

A review of many documents on strategic planning and strategic management (see bibliography in Appendix C) prior to initiating case studies served to crystallize the many issues surrounding strategic management that needed to be investigated during the case studies. In the course of the case studies, the project team reviewed additional material supplied by the participating organizations.

An internal paper defining strategic management was prepared. This paper, which was first drafted at the beginning of the assignment, was designed to (1) consolidate the major points made in the documents on strategic planning and management that were reviewed by the project team, (2) serve as a "straw man" for fuller documentation or refutation during the case studies, and (3) in its final form serve as the basic definitional statement for this report.

On the basis of the experience of the project team, members of the advisory committee, and recommendations of NCHRP staff, approximately 25 publicly funded transportation agencies, private transportation organizations, and other private companies known to be actively involved with strategic management were identified as potential case-study organizations. After initial contact with these organizations to determine their willingness to participate in this research effort, the following were selected for study:

1. *State transportation departments*—Arizona, Connecticut, New Jersey, New York, Pennsylvania, Texas, Virginia, Washington.
2. *Transportation authorities*—Metropolitan Atlanta Rapid Transit Authority (Atlanta), Port Authority of New York and New Jersey (New York/New Jersey), and Regional Transportation Authority (Chicago).
3. *Transportation companies*—Conrail and Roadway.
4. *Other companies*—Xerox Corporation and BellSouth Corporation.

For each organization selected for case study, the project team conducted interviews with key personnel, e.g., the chief executive, members of senior management, and planning and budgeting staff members involved in the strategic planning and/or strategic management activities of the organization. The history of strategic management in the organization was reviewed and the current status of strategic management and the reasons the status is as it is were documented. The strengths and weaknesses of the strategic management activities to date were assessed. Assessment varied in intensity due to the availability of managers, the nature of documentation provided, and the extent of strategic management practices.

On the basis of the earlier review, the project team identified a number of key factors (see Chapter Two) essential to the successful initiation and maintenance of a strategic management process in a publicly funded transportation agency. These factors served as the cornerstone of the guidelines discussed later in this report.

The project team found from the case studies that successful strategic management initiatives go through a specific number of phases in a specific order; however, they may have several false starts before hitting on a successful approach. These phases have been documented and modeled by the project team. This model is an integral part of the guidelines provided in the final chapter of this report.

After reviewing the findings of the case studies, the project team met with the advisory committee to present its preliminary findings and conclusions about what was required to initiate and maintain a successful strategic management process in a publicly funded transportation agency. With the assistance of the committee members, the findings, conclusions, and preliminary guidelines were refined. Chapter Two covers in detail the results from the research activities.

REFERENCES

1. GRAY, D. H., "Uses and Misuses of Strategic Planning." *Harvard Business Review* (winter 1986) p. 89.
2. STEIN-HUDSON, K. E. and MCDOWELL, B. D., "Applying Strategic Planning in the Transportation Sector." *TR News* (summer 1985) p. 20.
3. MEYER, M. D., "Strategic Management in a Crisis-Oriented Environment." Massachusetts Department of Public Works (winter 1987) p. 8.
4. NUTT, P. C. and BACKOFF, R. W., "A Strategic Management Process for Public and Third-Sector Organizations." *J. Am. Planning Assoc.* (winter 1987) p. 44.
5. BRYSON, J. M. and EINSWEILER, R. C., "Strategic Planning." *J. Am. Planning Assoc.* (winter 1987) p. 6.
6. BRYSON, J. M. and ROERING, W. D., "Applying Private-Sector Strategic Planning in the Public Sector." *J. Am. Planning Assoc.* (winter 1987) p. 11.

CHAPTER TWO

FINDINGS AND CONCLUSIONS

The research conducted for this project included the review of extensive amounts of written material on strategic planning and strategic management and the examination of 15 case studies of publicly funded transportation agencies and other public and private organizations. As the result of these activities, a number of significant findings and conclusions were documented that are relevant to both the successful and unsuccessful implementation and maintenance of strategic management. It is important to note that while the findings presented in this chapter are not universally applicable to all case-study organizations, all exist in various combinations in the majority of these organizations.

GENERAL OBSERVATIONS

Strategic management has its foundation in good, basic management principles that have been articulated by business, industry, and government leaders for years. It is distinguished from these management principles by virtue of its formal recognition as a "process" which can be articulated, implemented, and tracked by those responsible for agency or business performance. Certainly, its conscious focus on the articulation of mission, goals, and objectives; its systematic review, in context, of external environmental influences and internal assets and liabilities; and its focus on specific implementable actions are different from the steps that are part of other management techniques.

While the components of strategic management are similar to the components of good, basic management principles, the strategic management process and the identification of its stages and elements within an organization are an improvement on those principles. Moreover, strategic management is particularly appropriate for the changing environment in which business, industry, and government find themselves today. However, transportation agency officials have had difficulty defining strategic management and selling it within their agencies. This is partly attributable to the frustration associated with understanding the sometimes subtle differences between good, basic management principles and the strategic management process and all of its components.

Indeed, there is a key distinction between strategic management and good, basic management principles. Most business management principles have been developed around operational planning, which simply asks the question, "How do we keep doing what we have been doing, only do it better?" In fact, one case-study corporate strategic management document states that strategic management ". . . was developed and became widely supported out of recognition that traditional management systems, principally designed to improve efficiency of current operations, often failed to identify and respond to opportunities and threats facing the corporation as a result of changing market and competitive conditions." Strategic management first asks the question "Do we want to keep doing what we have been doing?" before asking, "How can we do it better?"

Strategic planning and management initiatives cause organizations to ask a somewhat different critical question—one that challenges whether they should continue doing what they have been doing, successfully or otherwise. The idea behind this approach is to identify a crisis or problem before it happens, hopefully avoid it, and thus benefit from a better performing organization. (Ironically, however, many of the strategic management processes in publicly funded transportation agencies grew out of a crisis situation.)

Furthermore, there are potential benefits to enhancing and repackaging good, basic management principles as strategic management. It draws attention to the process, it helps to identify roles, it focuses management prerogatives, it substantiates the need for improved data and information, it provides more opportunity for innovation, it forces a manager to look at things he or she might not examine otherwise, it aids teamwork and communication, and it provides a framework or structure for the application of sound management principles simply because of the focus and attention it receives. Enhancing and repackaging management principles as strategic management has therefore been both appropriate and beneficial.

Despite the close connection between good, basic business management principles and more formalized strategic planning and management processes, it is not paramount that organizations must embrace a formal strategic management process in order to be considered "well managed." It is certainly also true that a sophisticated, comprehensive, formal strategic management process is no guarantee for management success. Based on the research, however, a strong strategic planning and management process certainly facilitates the achievement of agency goals and objectives, which is an important measure of organization success and an indication of strong management initiative.

The difficulty of accurately, much less precisely, reporting on strategic planning or management activities at public agencies is directly connected to the definitional problems addressed in Chapter One. To wit: there is no common understanding of strategic management in most of the public agencies or even a generally understood purpose for, and/or acceptance of, strategic management initiatives. There is experience with the strategic planning component of strategic management, but even this is subject to substantial differences in interpretation and application.

With little exception, the case-study DOTs and transportation authorities are among the most experienced in strategic planning and management. At the same time, many state DOTs have a poor understanding of strategic planning and management, or they have a disdain for it.

Never were these points more pronounced than in the review of about 40 Transportation Research Board state DOT "strategic planning/management" survey responses coordinated and compiled by the Illinois Department of Transportation. (This information was supplemented by a confidential telephone survey by a major architectural/engineering/planning firm which queried 46 state DOTs on strategic planning activities.) It is clear from these data—supplementing the research team's experience—that strategic management principles, processes, and benefits are understood and applied in no more than a dozen state DOTs. Many of the remainder, plus many transit, airport, port authorities, and other publicly funded transportation agencies, seem to have insufficient interest in or understanding of strategic management. Instead, their focus is on day-to-day operational, political, or other matters that are deemed more critical than time spent on what often is viewed as an esoteric exercise.

Indeed, these dedicated officials are under intense public scrutiny and pressure; they generally command extensive capital resources held in the public trust; they are constantly searching for funding to improve service delivery; they must deal with countless elected and appointed officials; and they have large organizations with a myriad of management problems which they must handle. It is therefore relatively rare, to date, that senior management will make the commitment necessary to initiate and fully support a meaningful strategic management process.

One could argue, of course, that it is exactly these pressures which make strategic management initiatives viable for public agencies. In the best of worlds, chief administrative officers should be able to relate strategic management to their agencies and to their individual goals and objectives; to understand the processes; to see how strategic management will help them stretch resources, solve problems, and institutionalize strategic thinking within their management ranks; and, overall, to provide a real and immediate payoff that will make their organizations more effective in providing their products or their services.

In the private sector, such matters are constantly being brought to the attention of managers, primarily because the basic measure of success is profitability. Profitability, in most cases, means keeping pace with or outperforming the competition over the long run; even in the short run, the survival of the corporation is constantly at risk if profits are inadequate. Thus, a key element of corporate strategic management is the development of improved positions vis-a-vis the competition.

This "bottom line" orientation drives strategic consideration of numerous competitive issues in the business world. For example, the corporation must analyze how its products or services are differentiated from the competition's; it must identify what special value its products or services provide its customers; it must identify the distinctive capabilities that give the corporation a competitive advantage; it must identify the likely responses of major competitors to its own business initiatives; and it must assess how its own competitive advantage can be maintained in the long run. While there are corollary activities in some cases in the public sector, none is quite so driven as the private corporation's need to keep pace with the competition in order to guarantee long-term profitability. If the business is not managed, the corporation will fail.

Closely tied to the need to be competitive in private industry is the ability to cope with change. In the corporate environment, unmanaged or unpredicted change can have devastating impacts, even in the short run—much more so than in most publicly funded transportation agencies. Thus, corporate strategic plans, while looking outwards to seek positions of competitive advantage, must look inwards for means of coping with change. These foci help to guide the corporation in managing its operations and allocating its resources. Unlike most public agencies, the corporation's ability to expeditiously adjust to both competition and change directly impacts net profits and, ultimately, corporate survival. However, as seen in recent years, and as is noted elsewhere, competition for resources required to better serve the public is increasingly becoming a driving force in the public sector as well.

In early 1990, Ernst & Young (*1*) evaluated 277 major U.S. corporations with regard to specific actions required for success. The "American Competitiveness Study" showed that: (1) successful companies were organized to be close to their customers with decentralized structures, decision-making authority at the operating level, a management focus on establishing a proper culture versus tighter control, and executive compensation based on both long- and short-term performance; (2) the most successful businesses focused more on quality improvement than cost reduction and as a result actually received both better quality and lower costs; (3) the most successful companies also placed more emphasis on people-related investments, the primary constraint to technology adoption, and invested in technology only when it clearly helped them to meet customer needs; (4) companies with broadly focused planning processes, including internal organization and external competition, were more successful than those with more narrowly focused agendas; (5) better business performance was linked to operating measures that extended beyond traditional views of operations, and it appeared that traditional cost accounting and performance measurement systems could actually be roadblocks to success; (6) successful businesses offered broader product lines, upgraded those through innovation, and had a reputation for better products and services; and (7) successful companies were more vertically integrated, were likely to be involved in international markets, and were less likely to be involved in markets where customer bargaining power was the principal catalyst for change.

As noted in the fourth item, the broader the scope of the strategic planning/management agenda, the better the level of relative profitability.

Some criteria for success in the public sector and private sector are different. Despite these differences, however, strategic management principles and processes have application in both environments, and they can be beneficial to both, albeit in sometimes different ways.

The specific findings and conclusions of the research team are discussed in the following sections, under four categories: the first deals principally with the initiation of or attempts at establishing a strategic management process in an organization; the second addresses the nature and extent of individual participation in a strategic management process; the third addresses the impact of the organizational structure on the strategic management process and the organizational responsibility for strategic management initiatives and coordination; and the fourth discusses the processes in-place to support strategic management and the processes by which strategic management is attempted and/or achieved.

Although there are substantial interdependencies and strong relationships among these areas, it is useful to begin to disaggregate the players, their roles, the organizational units, the products, and the tools to improve understanding and to form the basis for developing recommendations and guidelines.

ESTABLISHMENT OF A STRATEGIC MANAGEMENT PROCESS

The principal findings relative to establishing a strategic management initiative in an organization have to do with, first, the underlying causes for initiating strategic management in the organization and, second, the environment in which the effort was undertaken. The principal findings in this category are as follows: (1) Strategic management often is initiated as the result of a crisis. (2) Major management changes usually precede strategic management initiatives. (3) Establishing (institutionalizing) strategic management takes years. (4) Distinct and essential factors must be in place for successful strategic management implementation. (5) Strategic management is not inhibited in publicly funded transportation agencies. Each of these findings and conclusions is discussed below.

Strategic Management Often Is Initiated as the Result of a Crisis

In several of the case-study organizations (especially the public-sector agencies), strategic management was initiated as the result of a real or perceived crisis. In one major U.S. corporation, the crisis was referred to as a "cataclysmic event." At PennDOT, which was found to be one of the most advanced case studies in its application of strategic management, strategic management was begun as an effort to revive the sagging reputation of the Department and to obtain sufficient funding from the legislature to meet its mission. Without a new approach to funding sources in its internal operations, the umbrella department was essentially doomed and in danger of being disbanded.

At the Port Authority of New York and New Jersey, the financial crisis of the 1970s in New York portended lower finances for the Authority in the foreseeable future. Again, something innovative was needed to help the Authority ensure the best allocation of the limited funds it would have available to meet its multimodal responsibilities.

In another case, the Regional Transportation Authority (Chicago) was handed a new role in 1983. Instead of simply distributing formula-derived funding allocations, it was to begin serving as fiscal watchdog and regional coordinator. This new charge created an immediate need for RTA to rethink what it did, why, and how—something short of a "crisis" but nonetheless radical.

Often there are situations in both the private and public sectors in which a crisis precipitates a reevaluation of company or agency goals, essentially nudging senior management toward a more formalized strategic planning or management process. Then, when the crisis has subsided, the rationale for the process is more carefully enunciated and justified. In one such corporate case-study organization, while a crisis precipitated the creation of a strategic management process, within a year it was being supported internally as a means to (1) reduce bureaucracy and (2) increase the quality of communications throughout the corporation. Although the rationale had changed somewhat, management remained fully committed to it and, in fact, used the process to develop 4-year strategic plans and associated financials.

Interestingly, in several case studies, although a crisis was the genesis of what ultimately became a strategic management process, the initial efforts were not called "strategic management." They were fairly simple efforts to establish some realistic goals and objectives in light of the situation being faced and to plan programs and activities to meet those goals and objectives. This process later embraced strategic planning and management, as in the case of the New Jersey DOT.

The Virginia Department of Transportation, which is now in the early stages of developing and instituting strategic management, also began its effort as the result of a rather sudden turn of events. Its situation is unique among the case-study organizations in that the crisis it faced was how to effectively spend the nearly 400 percent increase it was to receive in state funding. For Virginia DOT senior management, it was essential that the additional funds be efficiently and effectively used to meet the extensive transportation needs in the state.

The importance of this finding is that only in a minority of the case studies did the organization begin strategic management simply because it felt that to do so would improve internal organizational management. In a majority of the cases, there was a substantial and imminent reason to act, which led directly to initiating a process. Clearly, though not necessary or essential, a crisis or other sudden turn of events is a motivator toward strategic management.

A senior corporate executive at one of the case-study companies viewed the local transit authority (one of the nation's largest) as an excellent example of a risk aversion culture. He drew close parallels regarding the appropriateness of strategic management initiatives between his own company and the transit authority in areas such as competition, the need to carefully define the marketplace, and the need to continuously assess strengths, weaknesses, opportunities, and threats. In fact, he remarked that the authority, in order to initiate a strategic management process, ". . . must create their own crisis event!"

One of the case-study organizations, also a major transit agency, did just that. As noted in its booklet, "The RTA Story: Strategic Planning for the Year 2000," the Chicago RTA noted (page 2):

> Most government agencies wait until a crisis has arrived before taking action. Not the new RTA. In a move all too rare for a government agency, the transit authority has embarked on a long-term strategy for public transportation that anticipates the needs of the region into the 21st century. . . .

The RTA went on to produce an extensive strategic and capital investment plan which may provide the genesis and hub of a strategic management process at the agency.

Major Management Changes Usually Precede Strategic Management Initiatives

In most of the case-study organizations, the initial strategic management effort began after a major senior management change in the agency. In some cases, this change involved the chief executive of the agency; this was the situation at PennDOT, New Jersey DOT, the Port Authority of New York and New Jersey and, to a lesser extent, the Virginia DOT and the New York State DOT. In others, the changes affected large numbers of personnel. For example, Texas began its effort after the retirement of many of the district engineers who had been in place for years. The department felt that strategic management had a better chance of success with a younger, less conservative group. None of the research suggests, however, that strategic management would not eventually have begun without these types of personnel changes.

Establishing (Institutionalizing) Strategic Management Takes Years

The successful institution of strategic management, i.e., to the point that it becomes a natural and ongoing part of an agency's operation, requires several years of effort, especially in the public sector. Unlike other organizational processes that can be designed and implemented within months and function adequately after that time, the research team found no well-developed and fully functioning strategic management process that had not been initiated years earlier. Indeed, in one organization (the New York State DOT), the plan for establishing strategic management was intentionally staged to occur over a multiyear period. This length of time was deemed necessary for introducing, educating, and inculcating strategic management, i.e., to retrain management, to establish support systems, and to internalize the process into the everyday life of the DOT. Senior executives at major case-study corporations indicated that even in the private sector it takes at least three cycles for strategic management initiatives to routinely impact decisions and for management to accept and use the process.

The time required to fully implement strategic management in an agency is due in part to the fact that strategic management, perhaps more than any other process in an organization, is as much a management attitude as it is a technical process. Changing attitudes is a time-consuming undertaking. Another major factor contributing to the amount of time it apparently takes to fully implement strategic management is that most agencies did not consciously set out to institute strategic management. In most cases, their initial effort was undertaken to deal with a crisis or other major event by doing more realistic planning and budgeting. As a result, some of the key elements for strategic management were missing and had to be put in place before the process could fully evolve. Finally, strategic management efforts that are now at or near maturity, e.g., PennDOT and the Port Authority, were breaking new ground, and there were few, if any, models available to save them from the numerous mistakes they admittedly made in the early stages of their efforts. Interestingly, in each of these two cases, senior managers felt in hindsight that it was beneficial to have made and learned from the mistakes. Corporate case-study executives agreed, pointing to substantial benefits from just "doing, examining, working and thinking."

Distinct and Essential Factors Must Be in Place for Successful Strategic Management Implementation

Primarily on the basis of the case studies, the following factors were found to be key to the successful implementation of or steady progress toward strategic management:

1. *Active chief executive commitment to and visible leadership of the institution of strategic management in the organization.* Without the commitment and involvement of the chief executive, it is difficult to convince other managers that strategic management is important to the organization. Moreover, simple tacit approval of a strategic management initiative by the chief executive can have the effect of "damning (the effort) with faint praise." At PennDOT, Washington State DOT, Conrail, New Jersey DOT, Arizona DOT, Port Authority, and Virginia DOT, for example, the chief executives of the agencies are actively and visibly involved with strategic management. This also is true of most corporations in which strategic management plays a significant role.

2. *Strong and continual commitment to strategic management by senior and middle managers.* Along with the necessary commitment of the chief executive, it is also important that senior and middle managers be committed to strategic management if it is to have any chance of being successfully implemented throughout the organization.

Lack of commitment at these levels—no matter what the degree of chief executive commitment—summarily dooms any strategic management initiative, because senior and middle managers are essential players. Insecurity and passive, if not active, resistance is inevitable among some proportion of senior and middle management. This poses a significant challenge, often the *most* significant challenge, for the chief administrative officer, particularly during the formulative stages of strategic management. The situation calls for extremely dedicated leadership—leadership that may need to use many of the psychological tools available, such as patience, encouragement, persuasive discussion, education, determination, and so forth. Certainly, in very difficult situations, removal or reassignment of the individual(s) may be required.

3. *A clear and articulated agency mission supplemented by specific agency goals and objectives.* The base upon which strategic management is built is the clearly stated mission of the organization, supplemented by specific goals and objectives that are consistent with that mission. Strategies and action plans, of course, are built on the goal structuring.

The New Jersey DOT is a good example of an organization with a thoughtful goal-structuring process. First, a senior management retreat with a new chief administrative officer and staff produced a mission statement and eight comprehensive basic objectives. Special attention was given to the objectives statements so that they were as mutually exclusive as possible, i.e., working toward the accomplishment of one would not adversely affect the others. Then, after approximately a year of living with the mission/objectives statements and the establishment of a strategic management unit, the Department systematically began a process of enunciating strategies for each objective and assigning lead responsibility for the implementation of each strategy. This work, becoming institutionalized as the MOS (Mission, Objectives, and Strategies) activity, involves more and more managers in its refinement and implementation, and it is now being linked to the budgeting process. (In this aspect of the Department's activities, the work of the New Jersey DOT closely parallels that of the Washington State DOT.)

4. *A rigorous "closed loop" planning and control process with sufficient retained flexibility to respond to changing environments and situations.* Strategic management is primarily a planning and control mechanism that unites various levels of planning, e.g., strategic planning, operational planning, and so on, into a single system. Because of the necessity to coordinate these planning activities and to monitor in a timely and accurate manner the implementation of the programs that result, rigor—in terms of the scope, steps, and timing—is mandatory to success. At the same time, one of the aspects of strategic management that sets it apart from the more traditional approaches to planning and management is its flexibility in changing course relatively quickly when confronted with new or unanticipated changes in either the internal or external environment that affect the agency's ability to meet its mission, goals, and objectives.

In order to periodically assess such changes, for example, the chief administrative officer of the Arizona DOT requires a quarterly report on each "business" from the senior executives. Reporting is based on predetermined (and mutually agreed upon) performance measures. Mostly by exception, the executives report aberrations in the achievement of objectives, strategies, or activities.

Failure to establish a rigorous but flexible overall planning and control system in an organization attempting strategic management severely limits the organization's ability to realize the considerable potential benefits associated with such an effort.

5. *Clearly and properly defined agency "businesses."* While overall agency goals and objectives generally are enunciated under most planning and management approaches, strategic management recognizes that agency activities are not monolithic and that separate objectives and action plans need to be established for each of these activities or logical groupings of them. This is true even for single-purpose transportation agencies, e.g., Conrail. It is essential, then, that an agency's activities be rationally divided into a logical, related grouping of programs or businesses before meaningful goals and objectives—a critical element of strategic management—can be established for them.

Unless there are clearly defined "businesses," the danger exists that goals and objectives will be established at too high a level of generality to be useful in the development of meaningful plans that should deal with specific issues.

6. *Clearly understood division of responsibility for the various aspects of strategic management among the participating organi-*

zational elements of the agency. The success of strategic management depends on the congruence of well-coordinated activities and the clear allocation of responsibility for them throughout the organization.

Unless the allocation of strategic management responsibilities is clear, understood, and adhered to, activities may be unnecessarily duplicated, some essential activities may fall between the cracks, the feedback loop may be broken, and/or rivalries may be created among competing organizational units claiming responsibility for a single function. Strategic management seems to function best when individuals from appropriate line units are brought together to address issues that cross organizational lines. For example, the New York State DOT has a clearly defined hierarchy of responsibility, which places accountability for decisions at appropriate levels in the organization and links the various participants and activities.

7. *The location of responsibility for operational (program) planning and execution at the "line" level.* In the more successful organizations reviewed by the research team, principal responsibility for operational planning and execution was assigned to the line managers. The general consensus among these organizations was that line managers are the linchpin of strategic management in that they know better than staff planners what needs and opportunities exist in their areas, they must ultimately implement any agreed-to strategies, and without their critical involvement and cooperation, the effort would fail. Without the involvement of operational planning and execution at the line level, the potential for unrealistic—or even worse, irrelevant—plans and programs being established is substantially increased. As Gray noted (*2*):

> It is now widely accepted that strategic planning is a line management function in which staff specialists play a supporting role. Yet many companies have done little to prepare line managers for this kind of leadership. When they are left to grope for the operational meaning of concepts like 'strategic mindset,' 'issue formulation,' 'conflict management,' and 'portfolio role,' they feel ill at ease. Strategic planning seems more like a burden imposed from above than a better way of running their units. Not surprisingly, some of these line managers adopt a modest, mechanical approach to their planning duties.

Importantly, because operational plans *depend* on the strategies, line managers must be involved in strategy development as well as in the execution of action plans. This involvement is necessary so that line managers will understand how the entire strategic management process links together.

As described in one corporation, successfully pushing the thinking process and what the company is trying to accomplish down in the organization is the "real jewel of strategic management." Creating millions of "little thinkers" who perform their jobs in a certain way is the big challenge of strategic management. At Washington State DOT, line managers are required to respond in writing as to what action items they plan to accomplish for strategies related to their areas of responsibility.

8. *The availability of timely and accurate information upon which to base key management decisions.* Strategic management is both information dependent and information intensive. At one large state transportation department, a senior manager indicated that he viewed strategic management as being a sophisticated information exchange process. It is that and much more. Information is essential to the strengths, weaknesses, opportunities, and threats (SWOT) analysis that must be carried out; it is essential to the review of previous-year performance and to ongoing assessments of performance during the year; it is critical to forecast future options or consequences thereof. The information available to managers must be timely, and it must be accurate if the most appropriate decisions are to be made.

9. *Continual analysis and evaluation of the external and internal environments and appropriate adjustments to existing plans.* In the case-study organizations that have mature strategic management processes, strategic management activity is continuous. Unlike the activity in some planning and management systems, strategic management generally is not something which is done over a specific time period on an annual or other basis and then forgotten until the next cycle. Nor is it static, i.e., plans and strategies selected for implementation are not rigidly adhered to "at any costs." More specifically, almost every activity involved in the strategic management process goes on constantly, even if not always at the same level of intensity. If new information indicates that a change is necessary, the change should be made along with appropriate adjustments to performance objectives, program design, budgets, etc. Dowd (*3*) agrees:

> The Strategic Plan is a dynamic document to be subjected to constant review and adjustment in the years to come. It is not a static document that is to be blindly followed without question year after year. The Strategic Plan is neither a 'self-fulfilling prophecy' nor a be-all and end-all document that will solve every problem if followed to the letter.

10. *Restriction of the strategic management time horizon to a maximum of 5 years.* Most agencies reviewed felt strongly that one of the major problems with traditional long-range planning was that the time horizons were so long that they were unreliable in terms of the accuracy of the date upon which resulting plans were based and the abilities to foretell future events. To avoid this problem, nearly all case-study organizations involved with strategic management limited their time horizons, particularly regarding goals and specific objectives, to no more than 5 years, and many used horizons from 2 to 4 years. In Virginia and Pennsylvania, the time horizons are consciously tied to the terms of the governor, for example. Sometimes the capital plan drives the strategic planning efforts, in which case the planning horizon becomes that of the capital improvement plan.

Traditional transportation planning had a long time horizon with an end state to be achieved, e.g., capital improvements such as airports and roads. It did little to say how to get there, but the plan was intended to be rigidly adhered to. Strategic management may have a long-term vision, but it focuses on the short-term process of moving in a chosen direction. Consequently, its plans have a relatively short-term time horizon, e.g., under 5 years, made and revised in the context of the longer term vision.

11. *A strong basis in reality as opposed to "wishful thinking."* One of the most important benefits of strategic management is that if done properly, it forces the organization to focus on what is actually and reasonably achievable. This is true in scanning the environment, in setting goals and objectives, and in tying plans and programs to budgets. This linking of plans and programs to achievable resources over a relatively short time frame segregates strategic management from other forms of planning and management that imply unattainable levels of resources. In discussions with many officials in case-study organizations, this focus on reality was cited as the key difference between the

strategic management approach and what their organizations had done previously.

While strategic management must be grounded in reality, a major initiative of the strategic way of thinking is to create an agency's future by deciding what is desirable and then making it happen. The focus, then, is on understanding the current realities, seeing how they should be changed, how they could be changed, and what action steps would be needed to do so. Thus, there is a critical balance between what is current reality, what is desirable in the future, and how one transforms that desire into an actuality.

12. *Appropriate linkage between individual and unit performance targets and actual performance.* Appropriate rewards and punishments are an essential element of good strategic management. Without them, there are few incentives to plan and perform well.

Corporations, of course, have a sizeable latitude in the application of reward/punishment systems. They may include significant compensation increases (or decreases) or bonuses, promotions (or demotions or dismissals), and special awards or other benefits. The experience with recognition and reward systems in the public sector is not extensive for the reasons noted earlier in Chapter One. However, the Arizona DOT has focused on this issue and has identified and implemented several methods that have been successful for middle and lower management as well as for junior staff: increased opportunities for travel, certificates for free commuter bus fares, certificates for free lunches, increased exposure to the board and senior management, reward ceremonies at board meetings, recognition in the state highway magazine, designated parking space (with nameplate)—also tied to tenure at the DOT, and employee stress program.

Furthermcre, the Arizona DOT has been a leading participator in the Governor's Merit Suggestion Program, which carries monetary awards (up to $1,000) for suggestions that save time and money.

13. *Manager patience and perseverance.* Strategic management is not easily instituted. It takes time, and it involves trial and error. Unless managers have the patience to hold to a decision to institute strategic management despite the setbacks that almost certainly will occur, there is little likelihood of success. While generally pleased with the 3-year-old process at Washington State DOT, for example, the secretary expressed a continued concern for management's ability to "keep it rolling."

Furthermore, there is a psychological inertia in organizations, which is naturally accepting of the status quo and resistant to new ideas or approaches. Senior managers and others leading the strategic management initiative must be prepared to deal with the potential lethargic or destructive reactions of any detractors. The fundamental success or failure of the strategic management approach is highly dependent on managing this inherent insecurity and resistance to change which is almost sure to occur at one or more points along the way.

Other principal findings relative to establishing a strategic management initiative follow.

Strategic Management Is Not Inhibited in Publicly Funded Transportation Agencies

A major concern during the research was the extent to which strategic management in publicly funded transportation agencies was affected by the fact that the agencies operate in a public-sector environment rather than a private-sector environment. The research team found that although there are decided differences between the public and private sectors which tend to make strategic management somewhat more difficult in the public sector, these differences are not sufficient to inhibit the establishment or maintenance of a strategic management process in a publicly funded transportation agency committed to it. Clearly, publicly funded transportation agencies must regularly deal with elements that may be foreign to or less stringently practiced in private companies. Among these elements are legislatures and oversight commissions, budget hearings, gubernatorial and mayoral objectives, and competition from other agencies for resources.

Leitner and Posner (*4*) outlined differences between strategic planning in the public and private sectors in a strategic planning manual prepared for training courses at the New Jersey DOT:

Issues	Public Sector	Private Sector
• Public scrutiny	High	Low
• Political pressure	High	Low
• Decisions making	Diluted, slow	Focused, fast
• Major changes	Legislature	CEO, board
• Resource control	High	Low
• Human resources	Civil service and labor contract	Labor contract

These differences do not, in the authors' opinion, detract from the applicability of the strategic planning process to the public sector. They do recognize the fact that public agencies usually have more constituencies, more competing objectives, and more constraints on their activities than do private companies.

Clearly, publicly funded transportation agencies have more direct external influences on their operations than do private organizations. Yet, in the majority of the case-study agencies, managers felt that these factors not only were surmountable but also provided a strong rationale for strategic management. In fact, in some cases, the agencies have been able to get the external political elements to strongly support them as the result of establishing an effective strategic management process.

In a close examination of the intended benefits of the strategic management process to a major U.S. corporation relative to publicly funded transportation organizations, the research team discovered many more similarities than differences. For example, the chairman of the corporation, in his call letter to senior management exhorting their continued participation in the strategic management process, identified six key areas as important to growth and success: (1) closer integration of business initiatives, strategies, and operational and financial plans; (2) utilization of detailed competitive analysis; (3) identification and linkage of environmental changes; (4) establishment of priorities regarding strategic direction; (5) recalibration with respect to current plans; and (6) linkage to corporate values (parent/subsidiary linkages).

Although the business of this corporation is very unlike and much larger than the activities of most publicly funded transportation agencies, the rationale for applying strategic management principles is similar. In other words, most of the foregoing areas have as much applicability in the public sector as they have in the private sector. It is important to facilitate the integration of agency objectives, strategies, and operational and financial plans; to understand and deal with "competitors" for use of agency systems, networks, and facilities and for use of funds; to perform environmental scans; to establish priorities regarding strategic direction; to reassess current plans; and to improve communications among various operating units and with headquarters. Certainly, all of the distinct and essential factors for strategic management (presented earlier) are critical to both the public and private sectors.

However, as was pointed out earlier in this chapter, the importance of analyzing the competition (outward focus) and being quickly responsive to change (inward focus) are critical factors in a company's profitability and survival. They are much less so in most publicly funded transportation agencies. Therefore, what is the characteristic environment of public agencies that would seem to leave them with a less critical demand, as it were, for strategic planning and management initiatives? The following characteristics distinguish publicly funded transportation agencies, for the most part, from the corporate sector:

1. Profitability is not the driving motivation in most cases. In fact, most public agency accounting systems do not even measure it. (It should be pointed out, however, that some quasi-public transportation agencies, such as airport and port authorities, do indeed measure profitability, while receiving public financial subsidy for part of their capital or operating outlays.)

2. The measurement of performance in public agencies is not as straightforward, and the criteria for success are different. This is because the agency typically is performing multiple tasks, benefiting "stockholders" in many different ways and to many different degrees, and providing services or products that do not lend themselves to easy, clear-cut measurement.

3. The expectations regarding public benefit are different. The public expects and demands certain minimum levels of service from public agencies, while corporations are beholden—for the most part and under normal conditions—only to their stockholders. (Corporations, of course, also must abide by a myriad of laws and other regulations designed to protect the public interest.)

4. The public sector primarily provides services or products that the private sector cannot or will not provide. While there is a constantly changing tide of "privatization" and "reverse privatization" initiatives, the private sector will only participate in activities that will bear a direct or indirect profit.

5. Decision-making is more complex and politically motivated in the public sector. This means that decisions are made more slowly and public agencies are slower and less able to react to changing internal and external conditions.

6. A sense of urgency is not prevalent. This impacts the expediency with which services and products are delivered. (At the same time, it does not address the quality of the service or product, which may be equivalent to, less than, or in excess of that of the private sector.)

7. Public agency managers are more risk averse than are their corporate counterparts. (In fact, public agency managers normally do not get fired for missing budget targets or even for being a bad manager; if at all, they get fired for bringing an adverse public image on the agency.) All things equal, this implies that gain will be more gradual, on the one hand, and protection against failures will be higher, on the other. In other words, shifts in service and product delivery and stockholder benefit will be more conservative in public agencies.

8. Funding/financial mechanisms are very different in the public sector. The budgeting process is normally more involved, and extensive control is exercised over budget expenditures. Sources of funds also are more extensive in publicly funded transportation agencies, and thus managers have more complex accounting and budgeting responsibilities.

9. Public agencies normally have more layers of management between the chief administrative officer and the first line supervisor, and they also generally have more limited spans of control. Overall, this means that agency managers often have a smaller domain of responsibility than do corporate managers at the same level and with similar experience, which also may contribute to the generally slower reaction time. (There are notable exceptions to this situation, of course.)

10. Public agencies have a greater number of direct external influences on their activities. As part of the executive branch of government, they are continuously and directly impacted by legislative and judicial actions. This system of checks and balances, along with the relatively free access to agency activities by the press, subjects the public agency to constant public scrutiny.

Overall, the criticality of strategic management in a public agency may be less because the agency's ultimate survival probably is not dependent on it. In the private sector, the criteria for success, especially profitability and all that is required to achieve it, are much clearer. Its measurement is more straightforward; when profits slump, strategic thinking (should) automatically kick in. If it does not, corporate survival is at risk. While there is no comparable situation affecting publicly funded transportation agencies, the application of strategic management principles and processes in the public sector, which is the point of this finding, is still valid. In fact, public sector organizations are beginning to focus more on productivity, which might roughly translate into profitability in the corporate environment. They must learn to do more with fewer or the same resources. In this sense, the differences in public and private performance requirements may be diminishing somewhat; regardless, there is no doubt as to the potential application of strategic management in publicly funded transportation agencies.

The Washington State DOT specifically evaluated (via a review of the literature) the public-sector applicability of strategic planning and management as practiced by several major corporations. It concluded that strategic management may be used in an agency, such as the DOT, to anticipate and manage the future rather than react to current crises, to evaluate the need for programs and determine their effectiveness, and to plan programs to assure timely and cost-effective delivery of services and products. This endorsement of the processes developed largely by the private sector played a major role in the DOT's decision to formalize its own strategic management program. The private-sector orientation of the Chicago RTA's approach to strategic planning should also be noted: ". . . the development of strategies for the long run must be *market-driven,* balancing investment in the preservation of existing facilities with the aggressive pursuit of opportunities to serve emerging growth markets." The focus of strategic planning for this major public agency could just as well serve a private corporation.

PARTICIPATION IN A STRATEGIC MANAGEMENT PROCESS

As previously indicated, the quality and extent of participation in the initiation and ongoing operation of strategic management in an organization are key to the degree of success obtained. Consequently, the following findings in this category are particularly relevant to organizations considering the formal establishment of a strategic management process: (1) Organizations fully committed to strategic management extensively involve the chief executive. (2) Fully committed organizations also involve their line managers in all aspects of strategic management. (3) Strategic management roles, responsibilities, and relationships are unclear in some organizations—to the detriment of the effort. Each of these findings and conclusions is discussed below.

Organizations Fully Committed to Strategic Management Extensively Involve the Chief Executive

Strategic management, in those agencies where it was found to be sound, is an exceptionally participatory process. Not only are line managers and staff heavily involved in the process; so is senior management. At PennDOT, the secretary of transportation personally chairs the regular meetings of the department's strategic management committee, which consists of all the assistant secretaries. At the Port Authority, a deputy executive director is charged with overseeing the day-to-day strategic management activities of the agency, but an executive committee headed by the executive director sets the strategic direction for the agency and reviews the program plans and budgets of the various modes. At Conrail, the strategic planning committee consists of three senior vice presidents and the head of the strategic planning unit, who report directly to the president, who considers and openly recognizes strategic management as part of his daily routine. At Washington State DOT, the chief executive officer (secretary) plays an active role in initiating and tracking the strategic management process, particularly the goal/objective structuring and the delineation of strategic objectives. He also chairs the strategic planning committee and appoints technical subcommittees as required.

Fully Committed Organizations Also Involve Their Line Managers in All Aspects of Strategic Management

The case-study organizations may generally be divided into two categories—those that fully involve line managers in the whole of the strategic management process and those that do not. Without exception, those agencies that fully involve line managers have advanced further along the strategic management spectrum than those that have not. The more advanced agencies have recognized that line managers have important contributions to make to the establishment of agency goals and objectives as well as to the execution of programs and, unless line managers are on board from the start, they can render the process irrelevant at the program delivery level. The agencies that have not included their line managers have done so at the expense of both delaying the full implementation of strategic management and receiving its benefits. In no case was an organization that did not actively involve field managers judged to be very well developed in terms of its successful strategic management process. Kaufman and Jacobs (*5*) agree, noting, "Advocate and progressive planners, in particular, stress the need to bring people into the planning process who have not participated. . . . Like proponents of corporate strategic planning, all these authors argue that diverse participation will lead to more insightful and responsible planning."

The Connecticut DOT faced substantial resistance to the strategic planning and management initiatives at first, especially in the field districts, but was able to overcome the opposition primarily through involvement. Senior management adopted an approach which included: education (independent reading materials), presentations (persuasion), regular senior management meetings, training in strategic management activities, performance bonuses tied to an MBO program, active participation by unit managers in an objective setting, strategic management staff as facilitators, and widespread participation in issue identification.

While the strategic management process may not have been fully developed or formalized, the concept of getting line managers to change themselves through participation and acceptance rather than through senior staff mandate turned initial resistance into support.

An approach advocated by one of the corporate case studies goes a step further; they rotate line managers on a 1-year or 2-year basis from the line into the strategic management process. This normally is a temporary transfer, and it enables the strategic and financial management staff to be extremely well versed in operations matters. This gives credence not only to the results of the strategic management process but also to the process per se. At any point in time, up to half of the staff running the process are temporary placements.

Strategic Management Roles, Responsibilities, and Relationships Are Unclear in Some Organizations—to the Detriment of the Effort

In some of the case-study agencies, there was a considerable degree of confusion about the roles and responsibilities of various elements and personnel in the strategic management process. To the extent that roles and responsibilities were unclear, the strategic management effort suffered. In one state, there were two planning units with responsibility for developing strategic plans—a key element of strategic management. In another agency, staff responsibility for strategic management has shifted constantly, leaving both staff and line units confused and somewhat distrustful of the entire process. In still another, the unit responsible for strategic management tended toward "strong arm" tactics to try to gain middle management buy-in. Clearly, the strategic management support unit should be a facilitator, should be clearly identified as such, and should be seeking the willing cooperation of agency management without having to demand it.

In the case of the New Jersey DOT, little had been done in strategic planning and management until a major reorganization and restructuring of the Department was implemented. Limited initiatives had been taken, for example, in the development of a mission/goals statement and the conduct of several management retreats to focus on strengths, weaknesses, opportunities, and threats. With the new organizational design in place and additional staff hired and transferred to a new Bureau of Strategic Planning, the Department gained significant ground quickly. The newly retained bureau chief had recent and relevant experience in strategic management at another transportation agency, and the chief administrative officer and other senior management supported and facilitated the initiative. Thus, significant ground has been covered in less than a year, in large part due to the clear roles and responsibilities of a dedicated, albeit small, staff.

ORGANIZATIONAL STRUCTURE OF PARTICIPATING AGENCIES

The organizational structure of case-study participants was reviewed first to determine if the overall structure of an agency appeared to either facilitate or inhibit the institution and maintenance of strategic management and second to determine the impact that the location of responsibility for strategic management in an agency has on success or failure. The principal findings in this category are that: (1) there is no common organizational structure within which strategic management activities are necessarily initiated, (2) the location of responsibility for "managing" the strategic management function varies, and (3) large, full-time staffs have not been a prerequisite for success. Each of these findings and conclusions is discussed in the following.

There Is No Common Organizational Structure Within Which Strategic Management Activities Are Necessarily Initiated

Although there was no common organizational structure among the case-study organizations that had initiated strategic management efforts, the research team did find that the organizations whose strategic management processes were most advanced tended to be more decentralized than the organizations that were just beginning strategic management or whose efforts were moving slowly. As noted, successful strategic management processes substantively involve all levels of the organization. It therefore follows that strategic management is easier to implement in an organization that is already accustomed to decision making at multiple levels, as is the case in a decentralized structure. In some cases, such as PennDOT, strategic decisions, while relying heavily on field input, are centralized, and program operating decisions are decentralized. None of the case-study organizations that currently limit involvement in the strategic management decision-making process to centralized senior managers and staff units were as advanced in strategic management as the organizations that involve all management levels. Most, however, have a highly centralized process management and oversight function.

The Location of Responsibility for "Managing" the Strategic Management Function Varies

There is no common location for the unit or individuals responsible for managing the strategic management function. Furthermore, the fact that there is no uniformity does not appear to impact the success or failure of a strategic management effort. In one agency, process management responsibility is located in a management and budget office, which reports to a deputy agency director. In others, senior executives manage the process in a committee, while a staff of only one or two full-time personnel is assigned to assist them. In others, strategic management is coordinated by a small staff attached to the planning office.

The latter approach is the one adopted by the Washington State DOT. Although there is a formal strategic planning and management process that proceeds outside the traditional transportation planning activities, the processes are integrated both organizationally and functionally. In the first place, the strategic management function is housed within the Planning, Research, and Public Transportation Division. Secondly, the Division produces the State Transportation Plan which is presumedly influenced by the Strategic Management Plan, and vice versa.

At the Connecticut DOT, the chief administrative officer reassigned to his executive assistant two individuals from the transportation systems planning unit. The reassignment separates them from the day-to-day distractions of the transportation planning function, gives them special status, and provides them more direct access to senior management. Their assignment is to facilitate, assist, and stimulate the DOT's executives and managers to think and act strategically.

As noted elsewhere, the PennDOT strategic management process is among the most mature U.S. publicly funded transportation agencies. In this agency, the ultimate responsibility for strategic planning and management initiatives and products belongs to the Strategic Management Committee, which is staffed by the Director for Strategic Planning and his staff. The Committee consists of the chief administrative officer of the agency and five deputies. Seven subcommittees provide a resource for focusing on key issues and operations. Importantly, the Committee ". . . is responsible for the planning and utilization of all human, financial, technological, and contractual resources available to the Department." Strategic management activities are thus very focused in the Committee and are clear to agency personnel.

However, more important than the organizational location of the strategic management function is whether or not a single point of process management responsibility could be identified at all. In those organizations where such a point could be identified, the process worked better. Without a focal point, confusion exists over whom to look to for guidance. It is therefore important to establish a small unit whose primary role is to coordinate and facilitate the strategic management process.

Large, Full-Time Staffs Have Not Been a Prerequisite for Success

A number of the case-study organizations have formal strategic management staffs that are responsible for managing and supporting the process from start to finish, i.e., determining the steps in the process, making certain that analyses are performed and provided to key managers, and ensuring that all elements of the process fit together and are carried out on time. However, most of the organizations studied do not have formal units or even full-time staff devoted to strategic management, although there are exceptions such as Conrail and Washington State DOT. At PennDOT, there are two people assigned to support the Department's Strategic Management Committee, and each also performs other functions in the Planning Department. Virginia DOT has vested the responsibility for managing strategic management in a single manager who has a considerable number of other responsibilities. What is important in all cases, whether or not a formal strategic management staff exists, is that the organizations that are most successful at strategic management have recognized the importance of having the process promoted and managed and have assigned responsibility for that function. There is also a question as to where a strategic management unit should report. Most practitioners in state DOTs, of course, feel that the unit should be part of the CEO's staff even though it often is subsumed within the comprehensive planning function.

MANAGEMENT PROCESSES IN-PLACE

The research team reviewed the basic management processes that are in-place to support strategic management as well as the actual processes by which the case-study organizations perform strategic management. The objective of this review was to ascertain whether one process or group of processes was more indicative of likely success than another. The principal findings in this category are as follows: (1) There is no commonality among the basic management processes of the case-study organizations. (2) There is no common strategic management process. (3) The case-study organizations most experienced in implementing or operating under strategic management generally have a plan for planning. (4) The strategic management process in most organizations changes continually. (5) Organizations more experienced with strategic management often think and speak of "business planning" more than "strategic management." (6) The time horizon for the strategic management process often is relatively short. (7) Published strategic plans are not viewed as essential to strategic management. (8) Strategic management efforts are heavily information-dependent. Each of these findings and conclusions is discussed below.

There Is No Commonality Among the Basic Management Processes of the Case-Study Organizations

Although most case-study organizations have the basic management processes in place, e.g., capital and operational planning, budgeting, performance monitoring, information collection and dissemination, all do not have all of the processes important to successful strategic management, and the contents and sequence of steps of similar processes vary considerably from organization to organization. That the contents and steps vary does not appear to impact the success of strategic management implementation. However, the absence of sound, essential processes greatly affects the potential for success.

Many of the primary activities of the basic management processes of the New York State DOT are captured in what it refers to as Goal-Oriented Management. This process is ". . . a comprehensive continuing program to focus the energies of DOT managers at all levels on increasing the efficiency and effectiveness of their organizations in the performance of the Department's mission. It emphasizes clear definition of the results to be achieved and clear accountability for achieving them." The process includes strategic planning as a key element, which sets the strategic direction for the Department; describes strategic and operational goals, key activities, and performance targets; and develops specific action steps for implementation. This is a strong top-down approach which results in tying detailed work plans at the divisional or regional level to specific dollar and people resources.

There Is No Common Strategic Management Process

The strategic management processes of the case-study organizations were examined to determine if a single, common process was being used or if one overall approach was being used more than others. The research team found that there was no single process being used in all or even most cases. Basically, the strategic management processes employed by the case-study organizations evolved over time and were shaped to fit the existing structure, other processes, and the management style of the chief executive of the particular agency. For this reason, it is very unlikely that two strategic management processes would mirror each other. Even in instances in which one organization sought to pattern its process after one already established, there were major differences in the timing, steps, flows, and control of the processes.

The fact that strategic management processes among organizations differ substantially in these aspects is not indicative of whether or not the processes function effectively. Moreover, it is likely that if attempts were made toward uniformity, they would inhibit the progress of most organizations, because strategic management processes should be and are individually tailored to each organization. According to Bryson and Einsweiler (*6*),

> . . . the only thing that is clear right now is that different kinds of planning are useful for different purposes and different situations. The purpose of strategic planning usually is to help key decision makers figure out what the role of government ought to be, what it should do, and how it should allocate limited resources. Comprehensive planning ought to serve these purposes as well, but it tends to get distorted by legislative requirements, program guidelines, and the structural placement of planning agencies; by a focus on separate functions; and by a failure to consider creative alternatives to what government is doing. While practitioners often think strategically in specific functional or program areas, they tend not to think strategically about their communities in all areas—indeed, they are often prevented from doing so—and tend not to concentrate on all of the things that a government might do.

The Chicago RTA strategic planning process contains many elements similar to the strategic management process described earlier in this document. As noted elsewhere, its focus is long-range and includes a capital investment emphasis. Its major phases are as outlined:

I. *Environmental scan and issue specification:* mission statement confirmation, data base development, existing environment, existing strengths and weaknesses, and markets and constituent expectations

II. *Analysis of alternative futures, policies, and plans:* goal setting, forecasting, short- and long-term external circumstances, strategic options, and contingent alternatives

III. *Development of strategic plans, policies, and investment programs:* performance measures and strategies.

In practice, a vast majority of the effort was expended on Phases II and III—recognizing the emphasis on capital investment planning—and little attention was given to performance measures, action plan development (especially "tactics"), and plan implementation, which were left for later initiatives. It remains for RTA management and board leadership to success-

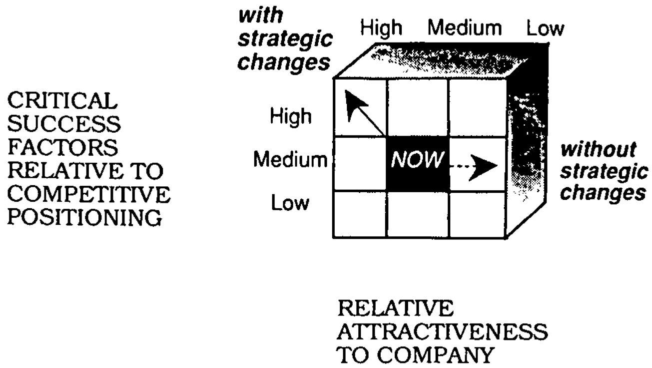


Figure 2. Matrix illustration of potential attractiveness and critical success factors.

fully integrate an excellent strategic and capital investment plan into a continuing strategic management process.

Some agencies and businesses use manual "tools" to work through selected steps of their strategic management processes. For example, one case-study corporation has developed a "nine-block matrix analysis" to graphically illustrate the current and potential attractiveness and the critical success factors required for major products/services (see Figure 2). A matrix is developed for each line of business or, in some cases, subbusinesses and results in Figure 2.

The matrix is actually the combination of an "attractiveness screen" and an assessment of "critical success factors" for the major products/services offered by the company.

The attractiveness screen evaluates factors such as market, customers, technology, competition, and regulation. Key questions include: How attractive is each business to the ABC Company over the 1989–1993 planning period? What are the reasons for the attractiveness? How attractive will the business be in 1993 and why will the attractiveness change?

The critical success factors include items such as sales force, service quality, differentiation, cost structure, and software skills. Key questions include: To be No. 1 or No. 2 in the market, what are the critical success factors for the major products/services (both for the ABC Company and our competitors)? How does the ABC Company rate in each of the success factors compared with the competition? How will we rate in 1993 and why?

The two evaluations are combined and result in the nine-block matrix, where the current 1989 position is shown along with the probable 1993 directions with and without strategic changes.

Subsequent assessment includes an evaluation of the current position of each planning unit in terms of key performance objectives for the major products/services offered by the company, a projection over 4 years for each product/service, and identification of the key strategies and assumptions that will allow the company to achieve its desired position in 1993. Examples of key performance objectives in this case-study company include market share, revenues, net income, financial performance ratios, service productivity, cost parity, and customer service. This process evolves into identification of specific functional and support strategies for each major planning unit. The strategies are specifically linked to the identification of resources (dollars and people) in the budgeting process, i.e., corporate expenditures are tied intrinsically to incremental strategies. A key part of the entire strategic management process at this company is the assessment of the financial implications of operation and long-term strategies as part of the normal business cycle.

The Case-Study Organizations Most Experienced in Implementing or Operating Under Strategic Management Generally Have a Plan for Planning

Strategic management consists of numerous activities that have to be highly integrated and coordinated. Some case-study organizations have not made a major effort to integrate these activities. Consequently, some of the activities mesh, while others do not. In the most experienced organizations, a plan is developed for the execution of the many activities involved in the strategic management cycle. Simply, these plans help ensure that activities and roles are properly scheduled and coordinated.

The New York State DOT, among others, is particularly advanced in this regard, with each step of the process scheduled carefully. The Department developed an Operational Planning Manual which defines strategic management and its components and which fits the Department's own situation and culture. The document provides procedures, considerations and examples to guide managers in their participation in the process. It also explains the purpose of the operational plan, how it fits within the context of overall strategic management initiatives, and how the Department is organized to establish strategic management.

The Strategic Management Process in Most Organizations Changes Continually

An organization's strategic management process evolves as the organization attempts different approaches to the activity or expands the process to other elements in the organization. As a result, the process in a given organization is rarely the same from year to year. The research team found this to be a positive situation in nearly all cases, because the changes were made to improve the process on the basis of experience.

In no case did the team find an organization whose strategic management process (including all activities, roles, priorities) remained unchanged for more than a year. The changes that took place were not all major changes, however. In some cases, they involved simply adding a step to the process. In others, the change involved shifting responsibility for some strategic management functions among the various elements of the organization or among agency managers. One corporation, which has been involved aggressively with strategic management for 4 years, cautioned that the process can seem to take on a life of its own. As one senior executive put it, "You have to pinch yourself regularly and ask 'What is the value added?' " Companies and agencies that continuously do this will change and improve their strategic management initiatives at least annually.

Organizations More Experienced with Strategic Management Often Think and Speak of "Business Planning" More Than "Strategic Management"

PennDOT and the Port Authority, among others who have relatively advanced strategic management processes, divide their program areas into "businesses" and then focus their strategic management activities on those businesses. PennDOT has four; the Port Authority, five. In determining the businesses, both organizations have grouped like programs or functions. For example, the PennDOT businesses are (1) Commonwealth transportation systems, (2) driver and vehicle services, (3) transportation grants management, and (4) Departmentwide services. The Port Authority's businesses are (1) aviation, (2) port, (3) trans-Hudson, (4) world trade, and (5) economic development. As might be expected, lines of business are identified in each of the corporate case studies and strategic analysis is performed for each one. Environmental scans are done for each of the businesses; goals and objectives are set for each; and specific action plans are developed to attain the goals and objectives established. What PennDOT and the Port Authority do is business planning and managing.

The Time Horizon for the Strategic Management Process Often Is Relatively Short

While many case-study organizations develop financial and other projections or forecasts that extend 10 to 20 years, and some even develop "program plans" covering 5 to 20 years in the future, most limit their strategic management time horizon to a period of 1 to 5 years, with the most common time frame being 4 years. Several explanations were provided for the shorter strategic management time frame than is normally associated with long-range or strategic planning. First, most public organizations adopt a time frame that either coincides with the term of the senior elected official or with legislative sessions. Another common and equally practical explanation provided was that the time frame was deliberately kept short because the rapidity of changes affecting transportation made longer periods unrealistic.

Indeed, in the context of strategic management, the internal and external environments in most transportation agencies change sufficiently to obviate any realistic consideration of plans beyond 4 or 5 years. Traditionally, agencies have developed long-range capital investment-oriented plans for a 10-year, 20-year, or even longer time horizon. The traditional transportation plan is mainly a listing of capital investment projects. While not based on strategic planning considerations in most cases, these plans frequently are considered unrealistic by agency managers—particularly in the out years—because forecasted revenues rarely equal the needs, desires, or "plans" as documented and because they are constantly changing as political priorities shift. Typically, these capital program plans are driven by legislative requirements, budgeting requirements, or other administrative directives. They are not strategic plans, nor in most cases are they products of a strategic management process.

While most case-study agencies or companies limit strategic planning and management initiatives to a 2- to 5-year horizon, the Arizona DOT held a conference in which futurists and state officials discussed potential 50-year futures for transportation in the state. Information from that conference was used not only for the 25-year and 10-year transportation plans but also as input to the strategic management process. The agency thus addressed in a unique way the irony of long-range plans being viewed as unrealistic and the need to look farther into the future to anticipate conditions and needs—an important aspect of strategic thinking.

Published Strategic Plans Are Not Viewed As Essential to Strategic Management

Many organizations with a recognized bent toward strategic management have routinely developed and published formal strategic plans. These plans have been replete with projected actions, often far into the future. They have also been deemed to be unrealistic by some and thus of limited value in the day-to-day operations and decision making of the agencies for which they were developed. In the case-study organizations, a majority do not have a formal "Strategic Plan" document or formal "Strategic Management Plan." When asked why no formal plan was prepared, the organizations indicated that formally published plans covering multiple years tended to lock the agency into actions that might need to be adjusted at any time and thus failed to recognize strategic management as a real-time exercise. Also, in the corporate world, plans were called obsolete "the day they were finished," and senior executives pointed to "thinking as more important than the plan!"

Initiating strategic planning in 1986, the Chicago RTA made a major financial commitment (approximately $1 million in consulting fees plus extensive staff time), involved more than 20 agencies as "partners," and intentionally established a long-term planning horizon. The plan had a strong capital investment orientation and, in fact, was published as the "Strategic Plan and Capital Investment Plan." Although apparently little was made of developing a strategic management process, the purposes and results of the RTA strategic planning process tended in that direction. For example, the avowed purposes of the plan were to focus attention on critical issues; motivate consensus on the mission; fundamentally change the way the RTA does business; provide a framework for decision-making; and set general strategy.

The strategic plan intended that board committees would assume implementation oversight and that the annual 5-year program and budget process would become the instrument for its continued implementation and refinement. Seven major strategic thrusts, along with associated policies, were developed. Also, high-priority and secondary-action items were recommended that were intended to accelerate plan implementation.

Organizations that do prepare a formal strategic (management) plan often produce a document that covers a shorter period than do the traditional transportation plans. For example, the Texas State Department of Highways and Public Transportation has a plan for one "action" year and four additional years, covering commitments to programs and projects. The Port Authority publishes a plan with one action year and five additional years. The Chicago RTA has 6-month "high priority" action items and longer term "secondary" actions. On the other hand, PennDOT does not have an agency-wide strategic management plan. However, it does have numerous strategies to deal with specific issues. The absence of formal agency-wide strategic management plans or the existence of plans covering a relatively short period of time is indicative of the strenuous attention that most case-study organizations using strategic management give to making sure their plans and strategies continually reflect reality, i.e., include the most achievable objectives and up-to-date information.

Some documentation is necessary, of course, simply to exchange important information among players. The point is that planning and management documents must not take on a life of their own, as has been the case with so many planning documents over the years. This point is illustrated in the left-column of the listing that follows, which identifies the self-avowed benefits (as noted in a paper by Politano (7)) of the strategic management process at the Washington State DOT. The column on the right reflects the judgment of the authors.

Benefit	Relies Strongly on Published Documents
Building Organizational Momentum	
• District administrations are learning from each other as a result of the quarterly reporting process	Yes
• Districts have a better understanding of DOT headquarters' role and purpose	No
• District communication with outside agencies is increasing	No
• Department management is focusing more on management of programs than on development of products	No
Efficient Use of Resource	
• Biennial construction program is ahead of previous periods	No
• Technical assistance and grants are being made in a more timely fashion	No
• Some districts are beginning to use efficiency measures	Yes
• Districts are installing more minicomputers for computer-aided drafting and other purposes	No
Better Focus of Resource	
• Future revenue sources and needs have been estimated	Yes
• Future anticipated workloads are being measured against current manpower levels	Yes
• Personnel is shifted among districts to meet manpower needs of the Department	No
• Technology for sharing information between state and local jurisdictions has been established	No
• Training programs to implement and maintain state-of-the-art capabilities are being developed	Yes

It is clear from the foregoing that the majority of primary benefits of strategic management are not necessarily drawn directly from published documentation.

As noted, however, the strategic management process per se cannot reasonably proceed without some documentation. For example, a "plan for planning," a manual (as in the case of the New York State DOT), or an action plan is needed in order to (1) explicitly state and clearly define things to be done, (2) clearly define responsibilities, (3) facilitate communication and coordination, (4) measure progress, and (5) provide a record for future planning initiatives. Whether the strategic management process produces a formal "strategic management plan" is best left to the organization. The documentation emerges from a need; it should not be an objective in and of itself.

It should be obvious that the strategic management process can proceed without the production of a specific "plan" document; in fact, in some successful companies, very little documentation is produced during or as a result of the process. At the same time, particularly in publicly funded transportation agencies, in which the decision-making process often involves many disparate players and is subject to public scrutiny, documentation of issues and alternatives is quite important.

Some agencies also produce documents to help confirm, redirect, explain or promote positions or options over which they have control or are trying to exercise control. For example, PennDOT strategic management documents included facilitating change through organizational direction-setting, PennDOT innovations (inventing our future), and major objectives final report.

Other internal PennDOT white papers address areas such as the development of business plans by each engineering district office, various policy analyses, development of the business group concept, and linking direction-setting efforts with the budgeting process. So, while strategic management is not dependent on the production of "strategic plans" (or something similar), documentation nonetheless plays an important role in exchanging information, education, promoting positions, and so forth.

Strategic Management Efforts Are Heavily Information-Dependent

One senior DOT executive called his Department's strategic management process "an information management exercise" in that it involved getting extensive and accurate information on existing or emerging issues, analyzing it, making appropriate action decisions on the basis of the analysis, and tracking programs designed to implement those decisions. Although this sentiment was not formally stated elsewhere, it is apparent that all case-study organizations involved substantially with strategic management are heavily information-dependent. An important distinction between the degree of information dependency of strategic management and that of traditional strategic planning is the scope of the information and the need for high short-term credibility.

In those organizations that have been most successful in applying strategic management principles, information systems and processes are more highly developed and sophisticated.

REFERENCES

1. Ernst & Young, "American Competitiveness Study: Characteristics of Success." (1990) pp. 1–13.
2. Gray, D. H., "Uses and Misuses of Strategic Planning." *Harvard Business Review* (winter 1986) pp. 91–92.

3. DOWD, T. J., "Considering Strategic Planning for Your Port." *Washington Sea Grant—Port Management Series* (winter 1987) p. 2.
4. LEITNER, L. A. AND POSNER, I., "Strategic Planning Manual." South Jersey Center for Public Affairs at Stochton State College (undated) p. 5.
5. KAUFMAN, J. L. AND JACOBS, H. M., "A Public Planning Perspective on Strategic Planning." *J. Am. Planning Assoc.* (winter 1987) p. 26.
6. BRYSON, J. M. AND EINSWEILER, R. C., "Strategic Planning." *J. Am. Planning Assoc.* (winter 1987) p. 7.
7. POLITANO, A. L., "Strategic Planning and Management Practice: Washington State Department of Transportation Case Study." Unpublished paper (Sept. 1987) pp. 6–7.

CHAPTER THREE

GUIDELINES FOR THE SUCCESSFUL INSTITUTION OF STRATEGIC MANAGEMENT IN PUBLICLY FUNDED TRANSPORTATION AGENCIES

As indicated earlier, strategic management has its foundation in basic, sound management principles; in recent years, it has evolved into a systematic process in industry, with direct applications in the public sector. In most cases, companies and agencies that have implemented strategic management have reshaped previous approaches to managing their business. Some have expanded strategic planning activities and worked to integrate a strategic "way of thinking" within the organization. Furthermore, as pointed out in Chapter Two, the onset of a crisis has often served to amplify deficiencies in the existing management systems and focus internal energies on improving them.

This chapter provides guidelines for those public transportation agencies interested in evolving their current management system into a strategic management system. The guidelines are the composite result of case-study findings, the collective experience of the research team, the considerable writings on strategic planning and strategic management that were reviewed as part of this project, and the comments of reviewers throughout the course of the project.

No two organizations are exactly alike in their scope of activities, management issues, structure, existing systems, or culture. Consequently, the research team sought to develop guidelines that are applicable to the broadest range of organizations. While these guidelines are not a guaranteed prescription for success, they provide a structured approach to initiating or enhancing a strategic management process.

The guidelines do not attempt to specify exactly how a particular action or step in the process is to be accomplished, nor do they specify corrective actions for weak activities or areas. They are, however, straightforward, understandable, and tested. They are designed to inform executives of what must be done to establish strategic management in a publicly funded transportation agency. In this regard, they are *guidelines,* i.e., "an indication or outline (as by a government) of policy or conduct" (Webster's Ninth New Collegiate Dictionary). They do not represent a detailed and specific prescription.

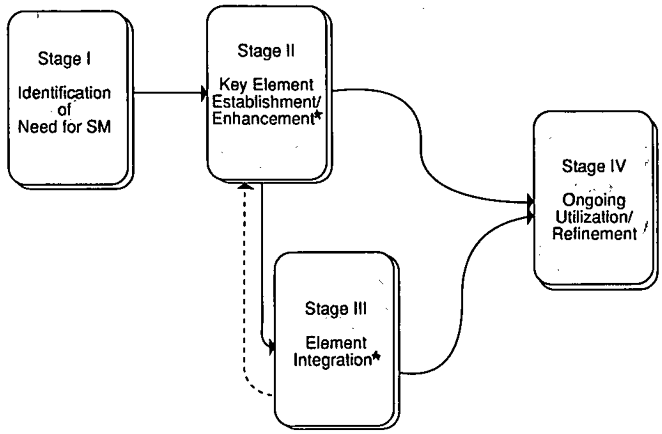
The reasons for this are simple. First, as the case studies show, no two situations are the same in terms of (1) the external or internal environments in which the organizations must function; (2) the extent to which the effort is endorsed by senior management; (3) the existence, adequacy, and sophistication of essential process and product elements already in place; (4) the capabilities of existing staff; (5) the personalities and relationships of key individuals; and (6) the inherent culture of the organization. How something gets done depends on all these things. Because each organization is truly unique, decisions as to how specific actions should be accomplished are best left to those individuals intimately familiar with the situation at hand. Otherwise, the guidelines might impose conditions on an agency which are truly inappropriate for its circumstances.

Second, because no publicly funded transportation agency has a "blank slate" with regard to essential strategic management process and product elements, an attempt to devise a specific approach for establishing or enhancing these elements would not be universally applicable. Thus, rather than promulgate a "model," the guidelines recommend a series of actions. As is evident from the case studies, there is not a single best way or best sequence in which to institutionalize strategic management.

FOUR PRIMARY STAGES OF STRATEGIC MANAGEMENT

There are four basic developmental and maintenance stages of strategic management. Recognizing these stages helps to structure the strategic management implementation process, identify progress to date, and better define and understand the key elements. The stages represent a chronological progression, with feedback loops, beginning with the determination of the need for strategic management in an agency and ending with the maintenance and refinement of the strategic management process on an ongoing basis. The stages are shown in Figures 3 and 4, and they are described, as follows:

Stage I—Identification of the need for a formal strategic management process and identification of specific weaknesses in the system. In this stage, the organization determines that its current management processes are insufficient to permit it to respond adequately to current or perceived opportunities or threats.



* It is possible to be involved in Stage II and Stage III simultaneously with different elements.

Figure 3. Strategic management stages and elements.

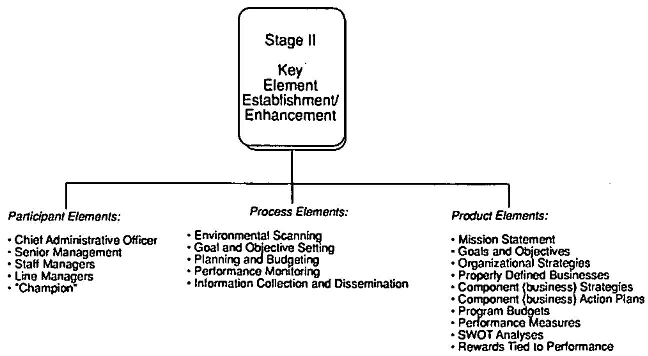


Figure 4. Elements of Stage II.

Thus, a modified management process will be required to facilitate day-to-day management.

Stage II—Establishment or enhancement of key strategic management elements. This involves planning a course of action that is designed to close the gap between current and preferred strategic management processes. As shown in Figure 4, the three categories of key elements are: (1) *participants* who play various roles in initiating, developing, and sustaining the process, (2) basic management *processes* themselves, and (3) *products* produced by or in support of strategic management. Without these elements in place, a smoothly functioning strategic management process is unlikely.

Stage III—Integration of the key elements into a functioning system. It is not enough simply to have the key elements in place; rather, the action plan should be implemented so as to influence decision-making. Once this integration occurs, strategic management is in place.

Stage IV—Ongoing use and refinement of the strategic management system. This involves following through, monitoring, and changing key elements based on the organization's experience.

These stages provide the framework for the guidelines for strategic management in publicly funded transportation agencies, which are presented below for each of the four stages.

First, however, let us examine what is meant by *guidelines* in this context and how they may be used to initiate or enhance strategic management activities. Guidelines are suggested steps or procedures based on others' experience in similar situations. They are not rules, although most are essential at some level to realize success in strategic management. They also do not follow an absolute sequence or priority; yet, they represent a series of activities that lead to the desired end result. (The stages described previously provide a basic overall sequence for agencies whose strategic management processes are not yet well developed.) In the simplest sense, guidelines offer experience-based advice to help one get to where one wants to be.

Furthermore, it is important to note that partial realization of the strategic management guidelines likely implies partial success, not total failure. In other words, developing a strategic management process is not necessarily an "all-or-nothing" situation. In many cases, much can be gained by using the guidelines to develop components of the process and to help create the environment for building the process methodically. Indeed, as with most guidelines, there should be sufficient freedom to achieve the desired objective within the culture, resources, and prerogatives of the agency.

STRATEGIC MANAGEMENT GUIDELINES

Figure 5 provides an overview of the stages and guidelines that are discussed in the remainder of the chapter. For each guideline in the table (Figure 5) there is a brief statement of *objective*, or intent, in applying the guideline. Also, based primarily on the case-study experience, significant *issues*, or potential pitfalls, associated with each guideline are highlighted.

These guidelines may be used by senior management as a practical summary of what has to be done to initiate, enhance, or sustain the strategic management process. From Figure 4, which identifies the key elements associated with establishing or enhancing the process, senior management may also note who should be involved (participant elements), what major activities must be performed (process elements), and what interim and final documents or other results should ensue (product elements).

The remaining sections of this chapter elaborate on each guideline, covering items such as why the guideline is important, what benefit should result from pursuing it, how it should be accomplished, and who the key players are and what their roles might be. (The guidelines are lettered consecutively for ease of reference.)

Stage I.—Identifying the Need for Strategic Management

The management systems currently in place in publicly funded transportation organizations vary widely with regard to the gap that exists between them and what would be regarded as a strategic management system. In some cases, the gap is relatively narrow. In others, it is quite substantial. Accordingly, the first thing an organization interested in establishing strategic management should do is assess the gap between the existing approaches to management and a strategic management system.

The decision to more or less formally undertake or enhance a strategic management initiative in and of itself represents a

Primary Stages/Guidelines	Objectives	Major Issues
Stage I. Identifying the Need for Strategic Management		
A. Determine the current status of strategic management in the agency.	To assess (a) the extent to which strategic management is already in place, (b) the potential buy-in of the chief administrative officer and other senior managers, (c) whether it would be appropriate to introduce basic management changes at this time, and (d) what probable actions might be undertaken to improve strategic management processes.	• Ensuring a systematic and candid approach to assessing the need and desirability for strategic management. • Obtaining full senior management cooperation, participation, and buy-in. • Underestimating the effort and resources required.
Stage II. Establishment or Enhancement of Key Strategic Management Elements		
B. Define the agency's businesses.	To establish a clear and proper definition of the agency's businesses based on an accurate understanding of the present and a realistic vision of the future.	• Avoiding the tendency to maintain the status quo in the face of changing external and internal environments. • Assuming that senior management has little influence over the future of the agency. • Institutionalizing the discussion of critical issues and environmental changes as regular, ongoing forums within the agency.
C. Develop plans for implementing strategic management initiatives.	To provide a comprehensive course of action to move the agency from the existing management system to the establishment or enhancement of critical strategic management elements.	• Obtaining a good understanding and buy-in from senior management. • Being realistic with regard to how fast the agency will be able to implement and absorb changes in management processes.
Stage III. Integration of the Key Elements into a Functioning System		
D. Ensure that the agency mission statement and goal structure are in place.	To establish a clearly understood and articulated mission statement for the agency, supplemented by goals and specific objectives for each major operating unit.	• Making the goal structuring process material and credible in the eyes of management. • Resolving trade-off issues among competing goals and objectives. • Ensuring that objectives statements are meaningful, that they are widely held throughout the affected organizational units, and that progress toward achieving them is measurable.
E. Obtain chief administrative officer and senior management commitment to the strategic management process.	To ensure an active leadership role by the chief administrative officer and senior management and thereby institutionalize the strategic management processes in dealing with day-to-day operational matters	• Insisting on chief administrative officer understanding of and participation in the strategic management processes ,thereby leading rather than being led. • Relegating strategic management to the exception atmosphere of retreats, workshops, and other "special" meetings. • Exhibiting consistent patience and perseverance in institutionalizing strategic management throughout the agency.
F. Establish a clearly understood division of responsibility for strategic management implementation, including the selection of implementation managers or facilitators.	To provide guidance to all managers and organizational units as to their roles and responsibilities in implementing the strategic management process.	• Selecting facilitators who can be supportive of the strategic management process but personally dispassionate regarding its results. • Ensuring that accountability for management participation, coordination, and reporting is clear.
G. Develop an accurate information base and maintain its timeliness.	To work toward the evolution of a consistent agency-wide information system which provides timely and accurate information for management decision making.	• Developing a meaningful planning process to prioritize system development requirements to support management needs. • Avoiding management information system paralysis in the provision of critical management information. • Determining which data are important and which are critical to strategic management.
Stage IV. Ongoing Use and Refinement of the Strategic Management System		
H. Monitor the strategic management system.	To provide continuous feedback so that senior management will know where adjustments are needed and to ensure that strategic management initiatives stay in step with the management needs of the agency.	• Formalizing the feedback process to the extent necessary to guarantee perpetuation of strategic management thinking in the agency. • Ensuring that senior management assumes ownership from the beginning and throughout the strategic management process. • Undertaking a periodic comprehensive evaluation of the strategic management process, participants, and products.
I. Develop a reward and recognition program.	To encourage exemplary performance from individuals and organizational units.	• Developing fair and equitable measures of performance and having adequate data and information to implement a program. • Overcoming or working within institutional constraints characteristic of a public agency.

Figure 5. Summary of guidelines for strategic management.

significant catalyst in the organization. The evaluation of whether or not to proceed should be made cautiously in order to avoid false starts or otherwise waste resources and thus sabotage any chance of future success. Careful attention must be paid not only to the subsequent implementation of the strategic management processes, but also to the introduction and management of change from the beginning.

A. Determine the Current Status of Strategic Management in the Agency

To facilitate the assessment of existing management systems, a comprehensive strategic management checklist has been developed and is included in Appendix B. The checklist is in question format; the questions are directly linked to the elements identified as essential to strategic management (see Figures 3 and 4) and to the key factors for success discussed in Chapter Two. Each question may be answered "yes" or "no." When an organization is able to answer most questions affirmatively, it can be judged to have a strategic management system in-place—regardless of the name, if any, it gives to the process.

The checklist may be used in several different situations within the same publicly funded transportation agency. The authors recommend that it be used initially to evaluate the relative strength of the current management processes. It should then be used every 2 to 5 years on a formal basis to reevaluate the quality of strategic management at the agency. The checklist may also be used periodically to gauge progress toward the implementation of sound management principles. In any case, in addition to the basic purpose for which it was designed, the checklist will allow an organization to objectively assess the adequacy of the involvement of its managers in the decision-making of the organization, the adequacy of basic management processes and their linkages to other processes, and the products that normally could be expected to be generated in a strategic management system.

Because of the considerable differences among the management systems currently employed by publicly funded transportation agencies, the results of individual assessments using the checklist will vary considerably. Consequently, the nature and amount of work to be done, as well as the time, staff, and financial resources required to fully implement strategic management, will also vary greatly.

Identifying the need for, and the desirability of, initiating or institutionalizing a strategic management process in an organization involves a rather straightforward set of steps. Although the application of the individual steps undoubtedly will vary among organizations, it is important not to skip or shortchange any of them. Rather, senior management will benefit from a systematic, stepwise approach to assessing the gap between current management systems and a strategic management process. This will facilitate making the decision to focus on improved strategic management and will help to ensure that the decision, whether yes or no, is the right one for the organization at the time. The basic seven steps are as follows: (1) initial decision by the chief executive; (2) orientation and continued participation of senior managers; (3) individual organizational unit assessments; (4) review of assessment results; (5) determination of actions needed to close management gaps; (6) assessment of benefits to be expected; and (7) go/no go decision to proceed. The remainder of this section describes the application of these seven basic steps and the use of the Strategic Management Checklist.

1. *Initial Decision by the Chief Executive.* The final decision to formally assess an organization's current management system against the essential components of strategic management should be made by the agency's chief executive. However, it should be made only after the executive has involved senior managers in the decision and has performed his or her own informal assessment using the strategic management checklist in Appendix B, his or her own knowledge of the organization and its culture, and his or her own willingness to commit the resources and personal time required for success. It is important that this be done so that the executive will have some idea of the magnitude of problems the CEO may be facing and how best to broach the subject of possible basic and substantial changes in the management system. This sets the proper tone, priority, and commitment to hasten success should new management principles and approaches be introduced.

In no case should the chief executive's informal assessment be the basis for immediate action—with the possible exception of those things touching on his management style. This is because chief executives, especially in large agencies or companies, rarely know the details of the process, products, and services of the agency, much less the management style and capabilities of staff and line managers. Basically, then, the purpose of this informal assessment is to get a feel for how big or small the problems are likely to be; estimate in what area(s) they are likely to be most pronounced; and estimate the relative effort that would be required to precipitate and institutionalize changes in strategic management.

It is very important that senior management participate informally and formally in the decision to begin a strategic management initiative. If not, the chief executive may unwittingly: cause resentment among senior management for not being involved in such an important and wide-sweeping decision; cause insecurity and "fear of the unknowns of change"; and invite passive resistance to the strategic management effort even before it is started.

In sum, a formal assessment by the chief executive which results in a decision to move ahead with strategic management is a major agency or corporate action and should not be made without the full participation of senior management.

2. *Orientation and Continued Participation of Senior Managers.* Following the initial decision, the chief executive should inform his senior managers of his intention to undertake a comprehensive assessment of the agency's management system. In explaining his position, the executive should provide the rationale for conducting the assessment and should explain the expected benefits. In fact, depending on the results of his own informal assessment, he may want to identify areas about which he has particular concern. He also should explain that if the assessment indicates that changes to the current management system are necessary and the decision ultimately is made to proceed, then implementation could take a considerable amount of personal time, effort, and other resources.

Each senior manager should be given the "Strategic Management Checklist" and asked to complete it. He/she also should be asked to explain the assessment process to subordinate managers and get their input as appropriate. Further, each "no" response should be accompanied by a brief explanation for future discussion and reference.

The results of the assessment will be of little value if managers are not completely honest as they use the checklist. "Fudging" answers in order to avoid hurting someone's feelings or exposing one's self to retaliatory criticism cannot be tolerated. Therefore, the chief executive must demand total honesty in the assessments made by individual managers, and he must ensure that criticisms are constructive. (One way to encourage frankness is to agree to keep confidential the assessments provided by individual managers.)

Finally, the chief executive should designate an individual to whom the checklists should be returned and who will be responsible for compiling a master summary checklist based on the individual assessments submitted. The individual selected for this responsibility should be someone in whom the senior managers have confidence and who has the capacity to objectively summarize the results.

3. *Individual Organizational Unit Assessments.* As soon as practical after meeting with the agency head, senior managers should convene all of their subordinate managers and brief them on the assessment and the role each subordinate is expected to play in it. It is important to the ultimate success of instituting strategic management that subordinate managers know as much as possible about the effort and that they participate in establishing the rationale for it to the maximum extent possible.

Once all subordinate managers have been briefed, the assessment at this level should be conducted following the instructions established by the unit head. The approach used to complete the assessment may vary from senior manager to senior manager. Some may choose to conduct the assessment in a group meeting of managers, while others may choose to have each manager fill out the "Strategic Management Checklist" and then compile the results. Either approach is acceptable.

After completing the assessment, each senior manager should submit his results to the coordinator for compilation.

4. *Review of Assessment Results.* After the coordinator has compiled the individual assessments into a master checklist, the agency head and the senior managers should meet to review the results. At this point, they will have a much better understanding regarding which of the essential elements of strategic management are in-place and require no change; in-place and require some degree of change, or not in-place. For essential elements that are in-place and require no change, it is necessary only that they be maintained at their current level. However, for those essential elements requiring enhancement, and for those that are not in-place, further assessment may be needed to determine why and to what extent a problem exists or to resolve differences in the interpretation of checklist results. Questions to be answered by this assessment include, How serious is the gap that has been identified, i.e., is it agency-wide or limited to particular units? Is the gap the cause or effect of other gaps that have been identified? What impact does the existence of this gap have on the ability of the organization to function effectively and efficiently?

The logistics, e.g., parties, roles, processes, internal negotiations, and so on, involved in accurately responding to these questions are indeed challenging. Yet, when these questions are answered, the organization will know the scope and impact of the gap identified.

5. *Determination of Actions Needed to Close Management Gaps.* The completion of the checklist will indicate what gap exists between an organization's current management system and a fully functioning strategic management system. The checklist will not indicate the actions necessary to close the gap—actions that can be made only by the agency's management. Accordingly, the agency head and senior managers should jointly determine what actions are needed. These actions may be divided into three categories: quick-fix actions that can be begun and completed in a relatively short time with a minimum use of staff or financial resources; immediate actions that could be started soon but that would take more time to complete; and longer-term actions that could be initiated only after other actions are initiated or completed.

6. *Assessment of Benefits to be Expected.* Although it will not be possible at this stage in the process to delineate clear and tangible benefits from the implementation of strategic management in the organization, it is important to assess what types of benefits may accrue. Other organizations (public and private) have identified, at this point, benefits such as: a unification of vision, mission, and goals and objectives agency-wide; a management discipline with appropriate checks and balances, as well as creativity; enhanced public (or shareholder) confidence in the organization; new measures of performance that are consistent with desired achievements; and a management process that serves the organization over the long term. Of course, these and other benefits should be determined for the organization itself. These should also be documented.

7. *Go/No Go Decision to Proceed.* Once the actions necessary to mold the current management system into a strategic management system are established at this level, the agency's senior executive must decide whether or not to proceed with their implementation. A decision to proceed should be made only after fully considering the following questions:

a. Will the disadvantages of instituting the changes to the current management system (as indicated by the results of the assessment) outweigh the advantages? The advantages and disadvantages of strategic management for the organization must be determined on a case-by-case basis. While undoubtedly different for each organization, they must be identified and subjectively weighed, one against the other. For example, an advantage of strategic management may be the ability to budget accurately; a disadvantage may be the resentment of the staff to a new process, thereby placing program execution in jeopardy.

If, after thoroughly evaluating the identified advantages and disadvantages of instituting strategic management in the organization, the disadvantages outweigh the advantages, the project should be shelved. On the other hand, if the groundwork has been properly laid internally and the benefits of a formal strategic management initiative are understood and essentially agreed upon, then management should move on to the next steps.

b. Is it likely to be extremely difficult, for whatever reasons, to implement the changes? The transition or evolution to strategic management will vary in difficulty among organizations, because some will have more of the essentials in-place than will others. It is necessary to the acceptance of the change, as well as to the longer term success of the effort, that the implementation of strategic management be accomplished as smoothly and in as timely a manner as possible. Implementation of anything new can be difficult and, in some cases, traumatic.

Managers should evaluate the degree of difficulty to be encountered in areas such as conversion of existing systems; internal acceptance; external support by sister or umbrella organizations, legislative bodies, or the public; and time. In those cases in which implementation is judged to present monumental problems, it is better to proceed slowly or not at all. Overall, if the perceived benefits exceed the costs of overcoming the difficulties, there is no reason not to proceed.

c. Is the senior executive team committed to seeing through the implementation of management changes despite problems that may arise or the amount of time and resources that may be required? The single most important requirement for successful strategic management, from beginning to end, is the commitment of the senior executive and the rest of senior management. Unless the commitment is there in more than just words, there is little need to proceed. The commitment has to be strong, visible, and active. Strategic management initiatives are beneficial if the commitment and follow-through are strong.

The evaluation of these three issues—overall advantages/disadvantages of establishing strategic management, implementation difficulty, and chief executive leadership—is critical to the decision to proceed. In the absence of satisfactory answers, experience seems to dictate that efforts to close strategic management gaps should be postponed, and management attention should be directed elsewhere for the time being.

It is not uncommon for chief administrative officers and other senior executives in public agencies to experience a relatively high job turnover rate. This fact clearly works against the establishment or enhancement of strategic management initiatives, given that a CAO's political accountability is high and may infringe on his or her commitment to long-term programs. What, then, is an alternative strategy available to the agency?

As noted, it may be prudent to postpone a formalized strategic management effort. However, the case studies showed that in some cases organizations have unknowingly established bits and pieces of the essential strategic management processes and products. This is done in the absence of formally recognizing a strategic management initiative.

While the support of the CAO and other executives is a critical element in successfully establishing a formal initiative, experience shows that an informal, incremental effort may proceed even without this support. As noted elsewhere, the processes and products needed for strategic management also are, in essence, the processes and products which an organization should have to support its day-to-day operations. As such, they are essentially self-justifying on an individual basis without the linkage to a formal strategic management process.

Accordingly, in those cases where lack of support for a strategic management initiative exists at the CAO and/or senior management level, attempts may still be made to ensure the establishment or enhancement of the essential processes and products. Success in this regard requires the presence of an adept strategic management "champion" within the organization—one who is able to develop strategic management initiatives on an informal, incremental basis. This may be thought of as a "holding action" until strong support from the top is available or renewed. Otherwise, successful strategic management initiatives are not likely.

Stage II—Establishment or Enhancement of Key Strategic Management Elements

When the decision has been made to proceed, it will be necessary to plan a comprehensive course of action to move from the current management system to the establishment or enhancement of critical strategic management elements. This involves a considerable amount of planning on behalf of the agency's senior management in order to ensure that the strategic management initiative—whether establishing new systems or enhancing existing ones—is initiated effectively.

Although the sequence is not sacrosanct, it is important that management pause at or near the beginning of the process to clearly define the agency's businesses and obtain general agreement on a realistic vision for its future. This step could precede or follow the development of plans for implementing strategic management in the agency. In the authors' judgment, there is a certain appeal to ensuring that the foundation of the agency is secure before changing its management process. In any case, clearly defining the agency's businesses is a strategic management activity regardless of when it is accomplished.

B. Define the Agency's Businesses

It is extremely important that any agency periodically assess its purpose. All management activities, including strategic management initiatives, should proceed from a clear and proper definition of an agency's businesses, based on an accurate understanding of the present and a realistic vision of the future. These definitions should be reviewed and revised appropriately in accordance with a continual analysis of the external and internal environments of the agency.

Most agencies are faced with a continually changing environment, which has the potential to significantly alter their businesses. This may be the result of a deteriorating infrastructure, legislative or sister-agency initiatives, changes in funding levels, and so forth. The potential impacts of such issues should be understood, because they likely will affect management's abilities to decide on and attempts to influence the agency's future. Thus, senior management should provide a process for identifying and evaluating changes in the internal and external environments and for modifying business and client definitions accordingly. This process should involve individuals throughout the agency, and it should encourage employees to surface issues which potentially impact their individual jobs or the agency as a whole. In particular, line managers and their staff provide a valuable perspective on the way such issues and alternative resolutions would affect the actual workings of the agency.

Clearly, there is a strong relationship between the question of accurately defining present and desired future agency businesses and structuring goals and objectives to influence agency performance, which is discussed later as another guideline. Senior management must take an active leadership role in each case and provide a forum for successfully achieving both initiatives. To institutionalize the discussion of critical issues and environmental impacts on agency operations, they must be moved out of the exceptional atmosphere of retreats, workshops, and other "special" meetings and moved into regular, ongoing forums for improved communication within the agency. Thus, these discussions should begin at regular staff meetings involving senior and middle management. Indeed, the opportunity to raise new issues and discuss those already identified should be afforded at every staff meeting.

Particularly critical issues affecting the clear definition of the agency businesses, as enunciated by senior management, should be evaluated using a sensitivity analysis (or similar) approach. This involves identifying the alternatives associated with the issue, formulating the scenarios associated with each, determining how each scenario would affect the agency, and developing preferred solutions. Senior management then has the responsibility to decide what the agency should do to achieve the preferred future and to facilitate implementation of appropriate actions.

The chief administrative officer should designate an ad hoc team or established organizational unit to facilitate this assessment. Its responsibilities would include the coordination and management of the process, the preparation of issues papers as appropriate, solicitation and assimilation of agency-wide input, conduct of issues analyses, education of agency personnel regarding the process, and facilitation of cross-organizational implementation of actions to realize the selected alternative(s).

C. Develop Plans for Implementing Strategic Management Initiatives

Senior managers should be assigned responsibility for developing detailed implementation plans for those actions that fall into their respective areas. These plans should include the individual steps to be taken and their sequence, the amount of time allotted for each step, the staff and financial resources needed for each, and the individual or unit to be responsible for the execution of each step.

The priority on the actions an agency will take is a judgment that must be made by the managers of the agency. The prime determinant in establishing priorities should be the potential impact that the action, or lack thereof, will have on the agency's operating efficiency and effectiveness. Once the priority of the actions has been established, it is necessary to specify the sequence in which the actions will be implemented. While the priority given each action should have a major role in the determination of sequence, other elements that will impact this decision include the ease of implementation, the availability of necessary staff and financial resources, and the fact that some actions will have to be put off until others have been initiated or completed, regardless of the priority the action has been assigned.

Once the sequence in which identified management gaps will be addressed has been determined, implementation plans have been developed, and the required resources have been identified, a master schedule for initiating the changes should be prepared. While it is possible that all of the changes needed to convert the existing management approaches to a strategic management system can be implemented over a period of a few months, it is more likely that the entire process will take one or more years to complete.

In developing the implementation schedule, an important consideration for the agency is how much change the organization can absorb over a given period of time. Senior management must judge whether to implement necessary changes more deliberately over a period of years, whether or not to implement some changes viewed as marginal, or whether to implement all changes as quickly as possible. Some organizations may, for any number of reasons, determine that they cannot absorb a large number of changes over a short period of time. If so, the agency should schedule actions to correspond with its ability to absorb them without negatively affecting its day-to-day operations.

Stage III—Integration of the Key Elements into a Functioning System

In the two prior stages of strategic management development, the agency determined the nature and extent of strategic management in its organization, defined or redefined its businesses, and developed plans for implementing strategic management initiatives. In Stage III, strategic management activities begin to be integrated with other systems and processes as the agency fortifies its commitment to improved decision-making. Attention is given to goal structuring, solidifying the commitment of the chief administrative officer and senior management team, establishing a division of responsibility for implementation, and developing an information and data base to support strategic management processes. At various levels, these activities involve most, if not all, of the participant, process, and product elements of Stage II. As time passes, more and more of the key elements will come into play as the agency's existing management systems evolve into a strategic way of thinking and managing.

D. Ensure That Agency's Mission Statement and Goal Structure Are in Place

It is difficult for an agency to manage strategically without a strong sense of mission, supported by specified and agreed-upon goals and measurable objectives. Each major organizational unit, each staff function, and each subordinate unit should have an individual set of goals and objectives which reflect its role in achieving the agency's mission. These should be consistent with each other, i.e., not working at cross purposes, and each organizational unit should be familiar with and understand the goals and objectives of the other units. This should foster an increased agency-wide awareness of each unit's role and functions.

In order to facilitate the creation and coordination of goals and objectives for each unit, management should set up a specific process for developing them. This normally involves a top-down approach driven by senior management, who should clearly set goal structuring as a priority. The goal structure, of course, is a hierarchy, beginning at the top with the agency mission and a set of overall goals. Subsequent goal and objective structuring down the organization incorporates more and more specificity.

A standard format for the goals and objectives statement should be developed and used throughout the agency. This will help ensure consistency among the units as well as guide them through the process. A sample set of goals and objectives should be provided for illustrative purposes. Unit managers should then be charged with developing goals and objectives for their units under a specified time frame.

Once drafts are prepared, managers at various levels should work together to resolve issues of roles, conflicting ends, and consistency. Issues which cannot be resolved at this level should be set aside for consideration at an agency-wide forum. This process should also allow for "bottom-up" feedback and as many vertical and horizontal iterations as are required to obtain consistency and quality.

When all the units have completed their goals and objectives statements, and when they have been coordinated appropriately with adjacent units, the entire goal structure should be bound with the mission statement in a single document and circulated throughout the agency.

Following endorsement by senior management, each unit should develop implementation cost estimates and time frames which reflect the agency's priorities for each objective. This information may be used in establishing the agency's budget, because it provides resource requirements linked to priorities and expected outcomes.

The chief administrative officer should appoint a standing organizational unit or a strategic management team to assist in the goal-structuring process. This unit should assume the responsibility for: (1) organizing and conducting orientation and education meetings; (2) facilitating development of the agency's (corporate) goals and objectives statements; (3) facilitating development of each unit's goals and objectives statements; (4) reviewing all units' statements for problems and consistency, and providing feedback; (5) preparing, distributing, and updating the goals and objectives document; (6) facilitating the development and monitoring of performance measures; (7) facilitating the link between the objectives and the budget process; and (8) serving as the clearinghouse for ongoing comments, suggestions, and revisions.

Goal structuring is not an easy exercise to do well; yet, it is a critical ingredient to solid strategic management. It is very important that the chief administrative officer and other senior managers provide leadership and credibility for the entire process.

E. Obtain Chief Administrative Officer and Senior Management Commitment to the Strategic Management Process

The most critical element in instituting strategic management in an agency is the active leadership role and commitment by action of the chief administrative officer. It is important that he or she establish strategic management as a priority for the agency and ensure that it is supported by the necessary resources. This commitment will energize other senior managers who will also lead the process on a day-to-day basis, implementing its concepts at all levels of the organization. Strategic management will then become an everyday approach to managing the business and will be reflected in how the organization thinks and acts as a corporate body.

As noted, the chief administrative officer needs to be an active participant in the strategic management of the agency and involved in many elements of the strategic management process. Specially, he or she should: have an understanding of strategic management and the associated processes, benefits, and resource requirements; establish strategic management within the agency and assign specific responsibilities for its implementation; and make strategic management a high priority, committing time to the efforts and activities.

In addition, the senior and middle managers should have a clear understanding of what strategic management is, what it means for the agency, what processes should evolve as a result, and what everyone's role is. They should also be committed to strategically managing the agency, knowing the implications of this commitment and the patience and perseverance required to institutionalize it.

To a great extent, developing and implementing strategic management is in and of itself the best way to learn about it. Additional efforts, however, should be made to educate the agency. Creation of a high-level policy committee, if one is not already in existence, with the responsibility for the policy and priority decisions associated with strategic management would provide both an educational vehicle and a visible forum for senior management. On a regular schedule, the chief administrative officer could use this forum to review progress on the priority issues and to address new issues related to the strategic management process. This also would provide senior management with continuous direction for improving the process.

No one, including the chief administrative officer, can prevent emergencies and crises from occurring. Because of this, the strategic management process should be able to address such situations in an appropriate manner. Senior management should have an understanding of how the processes address crises and should use these processes as crises arise. In fact, particular attention should be paid to planning for crisis management as part of the strategic management process. For the noncritical issues, managers should attempt to resolve them before they reach the senior management level.

F. Establish a Clearly Understood Division of Responsibility for Strategic Management Implementation, Including the Selection of Implementation Managers or Facilitators

The successful implementation of scheduled changes in an agency's management system, particularly if the changes are numerous or complex, must be carefully and closely managed. Based on the case studies, it is suggested that a facilitator(s) be appointed to oversee the implementation of the changes and to report regularly to the chief executive or a committee of senior managers. This facilitator should be responsible for recommending adjustments in the sequence or timing of changes when such action is appropriate.

In addition, if an appropriate standing organizational unit is not available, an implementation team should be organized consisting of individuals who can be rather dispassionate regarding the results of the process. That is, they must be fully committed to its success, but they should not have a direct personal stake in the outcome. If possible, they should not be in a position to gain or lose turf, staff, systems, or other resources as a result of changes in the management processes. Otherwise, their implementation initiatives may be tainted. This would apply to the facilitator as well, who would lead the team and be a knowledgeable and respected advocate of the strategic management initiative. The team should be established as early as possible in the strategic management initiative.

In addition to lead units or ad hoc implementation teams, roles and responsibilities regarding strategic management should be defined for each unit in the agency, focusing operational responsibilities at the line level. Keying in on its goals and objectives statements, each unit should identify its operational planning and execution responsibilities and roles, following a standard format. To encourage line-level responsibilities, the line managers should be the first to delineate their operational responsibilities. These should be reviewed and approved by their management, and the process should be repeated up the hierarchy. Ultimately, this should become an iterative function as the strategic management process in the agency matures. It is important that all managers know exactly what their roles and responsibilities will be in the implementation process. In those companies and agencies where strategic management is working well, managers know what their roles and responsibilities are, even though they do not always agree with their assigned responsibilities. Clear delineation of roles and responsibilities from the outset helps the organization avoid confusion and ensures that all essential implementation activities are delegated somewhere in the organization.

At some point in the determination of roles and responsibilities, outside consulting expertise may be called upon to help plan, develop, or implement strategic management actions. Often, a consultant is in a good position to assist in the evaluation of the current status of strategic management (per Guideline A), based on knowledge of the strategic management activities of other agencies and corporations. Or, a consultant may serve as a facilitator in developing or managing any one or more of the key processes or products. Strategic management initiatives should not be left to the sole prerogative of outside expertise; however, it is very important that the initiatives be visibly led by agency personnel.

G. Develop an Accurate Information Base and Maintain Its Timeliness

The objective here is to create, typically from existing systems, an accurate information (and data) base which will provide timely support for management decisions. Normally, individual units maintain their own management information records or systems as they deem necessary. Sometimes these data are derived from agency or departmentwide systems, but often they are independent and depend on additional manipulation for decision-making purposes. Of course, in some situations, managers are forced to make decisions without the benefit of necessary information, or the information is not entirely consistent or is incomplete.

To support strategic management processes, the agency requires a consistent, agency-wide, networked (as appropriate) management information system. This system should reflect the individual managers' information needs, should be continually updated, and should be readily accessible. It also should reflect the "need to know," i.e., not everyone needs to have access to all data, and it need not be elaborate or necessarily centralized.

To fully develop this management information system, unit managers must be formally and systematically involved in specifying their information requirements. Building on the attention already given to establishing a clear picture of lines of business, enunciating goals and objectives and performance measures, and assuming specific roles and responsibility for institutionalizing strategic management, the managers are in an excellent position to identify their own information needs. Of course, requirements should address monitoring of the external as well as the internal environment.

As many agencies (and companies) have discovered, this process of strategic information systems planning is a key part of building the support for a strategic management approach to running their businesses. In today's complex, changing, high-technology environment, attention given to this area not only will focus and delimit information needs, but also will save scarce software and hardware development resources. Priorities for systems development or changes in systems architecture should be driven by an information systems planning process, not by the whims and wishes of individual managers. Even in the case where an agency-wide management information systems committee is responsible for prioritizing systems development projects, failure to conduct a comprehensive evaluation of information and data-base needs hampers efficient and effective decision-making.

The information systems unit and the strategic management implementation team (or unit) should both be involved in establishing information and data-base requirements. They should provide the initiative and guidance in the systems planning area, working with each business unit in the agency to determine similar management information needs and develop a plan and program to serve them.

Increasingly, agencies are evaluating and installing Executive Management Information Systems (EMIS) to help support strategic day-to-day decision-making. An EMIS is a computerized tool that provides an organization's top-level managers with access to information used to manage the business. In some cases, EMIS is emerging as a critical management tool, enabling executives to finally gain direct benefit from the significant investment made in information systems over a period of years.

There are several important benefits to the establishment of Executive Management Information Systems in an agency. First and foremost, an EMIS enhances the decision-making process by giving the executive access to the information he needs, when he needs it, and in the format he wants to see it. Second, an EMIS should reduce the lag between when an event occurs and when information about the event is available for executives. Third, an EMIS gives executives more information about their areas of responsibility as well as areas outside of their span of control, increasing overall awareness of activities and improving communications. Finally, an EMIS provides a means for monitoring the achievement of agency goals and performance targets. This often serves as a catalyst for getting everyone in an agency focused on performance in key areas.

Stage IV—Ongoing Use and Refinement of the Strategic Management System

Because strategic management normally evolves from an established management system, it is essential that an organization's top management continually review the overall implementation effort and that it continue to monitor the process after implementation has been completed to identify areas where additional changes need to be made. This must not be perfunctory; it must be formal and it must be comprehensive. Furthermore, a meaningful reward and recognition program should be established to continually encourage exemplary performance from individuals and organizational units.

H. Monitor the Strategic Management System

During implementation, appropriate follow-through requires monitoring the changes being made to ensure that they are on schedule and that their results are what is expected. It also involves making needed adjustments as expeditiously as possible and reviewing the overall implementation schedule on at least a quarterly basis.

After strategic management is fully implemented, follow-through remains important because a strategic management system does not run itself; managers run it. To do so successfully, they must be actively and continually involved with the system. No matter how well-designed or efficient it is initially, any management system, if ignored, will become less efficient and correspondingly less effective; most importantly, it will eventually be out of step with the shifting management needs of the organization.

In organizations that have been involved with strategic management for some time, there is typically an implementation team of senior managers who have responsibility for continuously monitoring and providing leadership to the system. Any organization considering a strategic management initiative is advised to establish such a team if no standing organizational unit exists. Indeed, it is imperative that senior management assume ownership right from the beginning and throughout the strategic management process. The significance of ownership is that senior managers should do the strategic thinking, identify the key issues, and evaluate and outline the major strategies. If middle management, for example, does the critical thinking and then "spoon feeds" senior management, who then "rubber stamp" proposed changes, ownership will not have occurred at the appropriate level. Certainly, senior management commitment will not have been achieved, and either the full benefits of the process will not be realized or the process will fall apart for lack of senior management attention.

The principal follow-up focus of senior management should be the *process* elements of strategic management, because it is these that form the core of the system and that are the most likely to need refinement. It is also important to monitor the status of the *participant* and *product* elements; however, once in place, these elements are not as likely to require change. Finally, given the likely inertia of public agencies (and large corporations), it is important to undertake a new comprehensive assessment of the organization's strategic management system every 3 years or so.

I. Develop a Reward and Recognition Program

A strategic management system should have a reward or recognition system which is directly linked to clearly defined performance measures. Individuals' and units' activities should be monitored, and rewards should be based on their efforts and achievements according to agreed-upon indicators.

In almost every organizational unit, managers are responsible for reviewing their subordinates' performance and for providing input on raises and promotions. Normally, it is the individual manager's discretion whether to develop individual performance measures beyond whatever the agency may require. Also, the manager usually is the one to communicate expectations and decide whether and how to base rewards and recognition on actual performance.

In most publicly funded transportation agencies, managers are constrained by civil service regulations (or similar) in their ability to reward performance. Standard tools for reward, compensation and promotion, often are limited or disallowed. More and more, however, agencies are able to compensate outstanding performance at the executive levels alone, although situations exist where some discretion is given throughout the ranks.

In any case, the first step is to clearly define performance measures for each individual and organizational unit. Standards for like activities must be consistent across the agency. They should address responsibilities, expectations on both sides, and means of measurement. Attention should be given to successes in applying new processes as well as to measures which rely wholly on results. The set of rewards and recognitions to be used throughout the agency must be linked to the individual and unit performance measures so that employees know what they can expect as well as what is expected of them.

It has been shown that the size of a reward or the extent of the recognition is less important than the fact of the reward or recognition per se. In other words, individuals will perform better and units will increase productivity just for the challenge of relatively nominal rewards or recognitions. Involving the chief administrative officer and other senior executives in the execution of the reward/recognition program is an important way of fostering it. At a minimum, the individual employees should know that management will continue to identify reward and recognition methods and to be creative in their pursuit of new ideas in this regard.

CONCLUSION

The guidelines for strategic management in publicly funded transportation agencies have been drawn from many sources and case studies in corporations and public organizations. We have observed that strategic management has its roots in solid, basic management principles, yet provides a significant challenge to management in its practical application. Perhaps the biggest challenge of all is to institutionalize a strategic way of thinking—a challenge that goes far beyond the enunciation of goals and objectives, the careful delineation of responsibilities, the establishment of rewards and recognitions, or any one of the other key elements in establishing or enhancing a strategic management process.

Still, there are critical factors without which strategic management efforts are essentially doomed, and there are major pitfalls that should be avoided at all costs. Most of them have been spelled out in this document in some fashion. The last word on key success factors and major pitfalls, however, should be reserved for a practitioner at a state transportation agency, in this case the Arizona DOT, an agency which has had good success in strategically managing its resources:

1. *Key Success Factors*

a. **Commitment.** Either gain the commitment of a broad spectrum of top management or do not ask for permission to proceed; without either, just proceed informally and then give management the results of your thinking.

b. **Encourage thinking.** Strategic thinking among managers will prove more beneficial than any process ever could. If managers will begin asking questions such as, "What will happen if . . . ?", "What should we be doing about . . . ?", "So what?", and "Why not?", then progress is being made.

c. **Avoid jargon.** The use of "buzz words" in its presentation and implementation will aid reluctant managers in killing strategic management initiatives.

d. **Provide benefits.** Top management should be provided with meaningful output as early as possible in the process. Assumptions, alternatives, and "bottom lines" are more important to senior management than are processes, techniques, and tools.

2. *Major Pitfalls to Avoid*

a. **Resistance.** Organizational and managerial resistance to new ideas, new processes, new expertise, and new power bases is a weighty and real factor to be recognized and mitigated. This requires substantial planning and groundwork before implementation.

b. **Reinterpretation.** "This is just the same old planning we've always done . . . only the name has changed." Avoiding this pitfall with require exposing managers at all levels to the major actors and agencies in the organization's external environment.

c. **Busy work.** Managers should not be unnecessarily overburdened with new tasks and activities. Strong staff facilitation of strategic management initiatives and a focus on workshop settings will help.

d. **Same focus.** Strategic management must focus primarily on what we should be doing, not on what we are doing. The initiative must go beyond the issues of efficiency and effectiveness to modification and adaptation as the measures of organizational success.

In light of a renewed emphasis from the U.S. Department of Transportation on national transportation policy development, on reevaluating priorities, and on technical and managerial innovation, strategic thinking (i.e., strategic management) offers new opportunities. It also offers a significant challenge and opportunity to managers of the transportation infrastructure and operating systems to view the world around them a little differently—to become involved in "the process of articulating a future vision of accomplishment. . . ."

Appendix A

Strategic Planning for State and Local Transportation Agencies: Outline of Videotape Presentation

ELEMENTS OF STRATEGIC PLANNING CHECKLIST

1. Examination of the mission of our organization:
   - What are we trying to accomplish?
   - Where are we now? How successful are we in achieving our mission?
   - Where do we want to be in five years? Do we need to change our mission?
   - How do we define success?
2. Environmental scanning:
   - What are the economic, social, technological, demographic, and public policy trends and how will they affect our mission and organization?
   - How will these trends affect the demand for our services?
   - Who else can provide the services or alternatives to them?
   - What are the competing demands for the same resources?
   - What will happen to the cost structure in providing future services? Will there be major changes in technology or production methods?
   - Where will future financing come from?
3. Market analysis:
   - Who are our customers and how are their needs changing?
   - Are there new markets or special markets that we should serve?
   - What alternatives exist for those who use our services and facilities? How well are they serving our customers?
   - What are our customers' goals? How do they define success? How do we provide services to help them achieve their goals?

Developed by: Transportation Research Board
National Research Council

4. Strengths and limitations of our organization:
   - What are the cultural and institutional constraints of our organization?
   - What are the key factors that have made our organization successful? Will these key factors lead to success in the future?
   - What are the weaknesses and strengths of our organization and of other agencies serving the same clientele? What factors keep us from being more responsive to our customers' needs?
5. Shareholder analysis (constituency analysis):
   - How will changing our services, our goals, and the structure of our organization affect those who share with us in the current support of our agency and its activities?
   - Do our shareholders have multiple, diverse, and sometimes conflicting goals and objectives? How can we best provide services to such diverse groups?
6. Analysis of threats and opportunities (scenario building):
   - How should we act or react to changes that may occur in the demand for our services, in the cost of our services, and to changes in technology? What are our strategic alternatives?
   - What are current trends that need to be exploited now?
   - What dangers exist if we delay making changes?
   - Are there activities that we should drop, combine, or add? What will be the impacts on our supporters, the markets we serve, and our employees?
7. Critical issues and strategies:
   - What are the top critical issues that have surfaced as a result of our strategic management process?
   - What strategies and options do we have to respond to these critical issues?
   - What are the risks and benefits of the proposed scenarios to the organization and to the shareholders?
   - What losses can the agency sustain?
   - Where is there substantial pain in the organization that warrants making changes?
   - How do we coordinate the strategic plan with the budget process?
   - How do we coordinate changes in our activities with continuing demands for ongoing services?
   - How do we cope with limited resources?

ELEMENTS IN ACHIEVING ORGANIZATIONAL CHANGE

1. Organizational change must be managed.
2. Organizational change involves developing a clear picture of the desired state and moving an organization through the transition.
3. Organizational change requires redefining success.
4. Implementation issues:
   - Resistance to change must be overcome.
   - Changes are required in normal control process.
   - Change brings about shifts in organizational and individual power.
   - Change will occur best when there is a clearly perceived organizational need.
5. Action steps to motivate change:
   - Identify dissatisfaction with the current state.
   - Build in broad participation in the process.
   - Reward the behavior that is desired.
   - Provide time and opportunity to disengage from the present state.
6. Four steps for managing organizational transition:
   - Develop and communicate a clear image of the future.
   - Keep a holistic view of changing the institutional culture as well as the individuals.
   - Designate a full-time manager responsible for the transition.
   - Monitor progress.
7. Shaping an organization's political dynamics:
   - Assemble a coalition of power groups and neutralize the opposition.
   - Demonstrate organizational leadership support.
   - Use symbols that can be identified with the change.
   - Build in a sense of stability.

STRATEGIC PLANNING
A MANAGEMENT THOUGHT PROCESS

1. It is a structured way of being aware of critical issues and thinking about choices. It is used in preparing organizations to meet a changing future.
2. It is a management tool, not a planning function.
3. It is not a set of rigid rules or procedures; it is flexible to fit the culture of the organization.
4. Change is most likely to occur when there is a clear need that is understood and accepted by everyone who will be affected.
5. Implementation is the hardest job; getting people to change is more difficult than deciding that change is needed.
6. There must be participation by staff on matters that directly affect them. Management must learn to listen and be aware of how the definition of success will be changed.
7. Organizations are socio-political institutions, and it is these cultural features that set the parameters in which change can occur.
8. Strategic planners and managers facilitate change by providing a situation in which participants can effectively blend their individual success with the success of the organization.

Appendix B

Strategic Management Checklist

NOTE: This checklist enables an agency to determine the extent to which it exercises strategic management in its day-to-day operation. The checklist is associated with two critical stages in the development of a strategic management process: *I - Identification of the Need for Strategic Management, and II - Key Element Establishment/Enhancement.* The key elements are categorized as follows:

1.0 Participant Elements	Individuals and units that have major roles in strategic management.
2.0 Process Elements	Basic management processes such as goal structuring and planning and budgeting
3.0 Product Elements	Products produced by or in support of strategic management

The questions are structured such that the more "yes" answers an agency denotes, the more likely it is to have a strategic management process in place. In this respect, the checklist may serve as a continual gauge of the extent to which an agency embraces strategic management principles.

1.0 PARTICIPANT ELEMENTS CHECKLIST — YES NO

1.1 Chief Executive

1.1.1 Is the CEO actively and visibly involved with the major planning and control activities of the organization, e.g., ☐ ☐

- Developing goals and objectives
- Developing organization-wide priorities
- Deciding organization-wide strategies
- Setting primary policies
- Reviewing program plans
- Reviewing budgets
- Monitoring program operations
- Reviewing the performance of senior manager
- Providing an organization structure conducive to strategy development?

YES NO

1.1.2 Does the CEO seek the advice of senior managers on critical decisions? ☐ ☐

1.1.3 Does the CEO meet regularly, i.e., at least once a month, with senior managers, individually and collectively, to assess their performance and that of their units in relation to established plans? ☐ ☐

1.1.4 Does the CEO willingly make the "tough calls" in a timely manner, e.g., ☐ ☐

- Deciding among competing priorities
- Acting on poor manager performance
- Adjusting the organization when necessary
- Adjusting plans on the basis of new information?

1.2 Senior Managers

1.2.1 Do senior managers actively provide advice to the CEO on critical decisions affecting the organization? ☐ ☐

1.2.2 Is the authority delegated to senior managers commensurate with their responsibilities? ☐ ☐

1.2.3 Are senior managers actively and visibly involved in the planning and control activities of the organization — particularly with regard to the units for which they are responsible? ☐ ☐

1.2.4 Do senior managers closely monitor the performance of the managers reporting to them? ☐ ☐

1.2.5 Do senior managers make decisions within their scope of authority in a timely manner — as opposed to delaying the decisions or passing them up to the CEO? ☐ ☐

1.2.6 Do senior managers work together to address problems confronting one or more of them? ☐ ☐

1.2.7 Do senior managers meet regularly with their subordinate managers to assess their performance and that of their units in relation to established plans? ☐ ☐

		YES	NO
1.2.8	Do senior managers willingly adjust plans and programs on the basis of performance or new information even if it is out of the normal planning and budgeting cycle?	☐	☐
1.2.9	Do senior managers surface issues for discussion and resolution when they occur?	☐	☐
1.2.10	Do senior managers recommend organizational changes or redefinitions of their units to improve their strategic focus?	☐	☐

1.3 Staff Managers

		YES	NO
1.3.1	Do managers of staff units function in a support rather than a control role?	☐	☐
1.3.2	Have staff managers thoroughly informed their personnel that their purpose is to support and not to control other units of the organization?	☐	☐
1.3.3	Is the authority delegated to staff managers commensurate with their responsibility?	☐	☐
1.3.4	Do staff units provide line managers with sufficient information and assistance to facilitate the efficient and effective execution of line programs, e.g.,	☐	☐

- Internal and external environmental information
- Program performance reports
- Current and accurate budget/financial information
- Quick turnaround on personnel requests
- Timely procurement of needed supplies and services
- Timely action on systems requests?

		YES	NO
1.3.5	Are all staff managers knowledgeable about the scope of activities for which the line units are responsible?	☐	☐

		YES	NO
1.3.6	Is the budget staff precluded from making decisions on the advisability of specific, legal expenditures of funds?	☐	☐
1.3.7	Is the planning staff precluded from developing plans for line units or programs?	☐	☐

1.4 Line Managers

		YES	NO
1.4.1	Are line managers actively involved in setting the objectives and priorities for the programs/activities for which they are responsible?	☐	☐
1.4.2	Is the authority delegated to line managers commensurate with their responsibilities?	☐	☐
1.4.3	Do line managers have the authority to make decisions in their areas of responsibility so long as they are consistent with established plans and budgets?	☐	☐
1.4.4	Do line managers readily make these decisions rather than pass them along to their superiors?	☐	☐
1.4.5	Are all line managers thoroughly knowledgeable about the organization's administrative and management processes?	☐	☐
1.4.6	Do line managers routinely adhere to prescribed administrative and management processes?	☐	☐
1.4.7	Do line managers meet regularly with their superiors to discuss performance and emerging issues?	☐	☐
1.4.8	Are line managers inclined to surface issues and problems with their superiors?	☐	☐
1.4.9	Do line managers meet regularly with their subordinates to discuss performance and emerging issues?	☐	☐
1.4.10	Do line managers in a unit act together to develop the unit's strategies?	☐	☐
1.4.11	Are most operational decisions in the organization made by line managers?	☐	☐

2.0 PROCESS ELEMENTS CHECKLIST

2.1 Environmental Scanning

		YES	NO
2.1.1	Does the organization engage in environmental scanning?	☐	☐
2.1.2	If so, is it done on a continual basis rather than cyclically?	☐	☐
2.1.3	Does the scanning result, among other things, in a succinct set of key issues to be addressed?	☐	☐
2.1.4	Is responsibility for scanning shared by staff and line units of the organization?	☐	☐
2.1.5	Does the scanning done by the organization include: • The internal environment • The intragovernment environment • The intergovernment environment • The external environment • Strengths and weaknesses of the organization • Opportunities and threats facing the organization?	☐	☐
2.1.6	Are the data used in the scans dependable?	☐	☐
2.1.7	Is the time frame of the scans five years or under?	☐	☐
2.1.8	Is the scope of the scans directly relevant to the activities and programs of the organization?	☐	☐
2.1.9	Does the scope of the scans cover every operational and program area of the organization?	☐	☐
2.1.10	Can specific scans be requested by organizational elements?	☐	☐
2.1.11	Is the data from the organization's scans routinely compared with other externally available information?	☐	☐

		YES	NO
2.1.12	Is the information from past scans checked periodically to judge the accuracy of the methodologies being used?	☐	☐
2.1.13	Are established methodologies established for each type of scan conducted by the organization?	☐	☐
2.1.14	Are the analyses performed during the scans reviewed by upper management before they are used as the basis of plans and strategies?	☐	☐
2.1.15	Are all scan results shared with all senior managers?	☐	☐
2.1.16	Are the results of environmental scans provided in sufficient time to be incorporated in the annual planning cycle?	☐	☐

2.2 Goal- and Objective-Setting

		YES	NO
2.2.1	Does the organization have a formal goal- and objective-setting process?	☐	☐
2.2.2	Are goals and objectives reviewed on at least an annual basis?	☐	☐
2.2.3	Are goals set for each major category of the organization's activities?	☐	☐
2.2.4	Do all goals tie directly to the organization's mission statement?	☐	☐
2.2.5	Are the goals general in nature?	☐	☐
2.2.6	Are goals stated without any time parameters?	☐	☐
2.2.7	Are there five or fewer goals for each element of the organization?	☐	☐
2.2.8	Do all goals have a real possibility of being achieved without the occurrence of extraordinary, unpredicted events?	☐	☐
2.2.9	Are all levels of the organization's management involved in the goal-setting process?	☐	☐

		YES	NO
2.2.10	Are clear priorities established among the goals for each planning category?	☐	☐
2.2.11	Are overall priorities established among all the goals of the organization?	☐	☐
2.2.12	Are priorities established among the objectives in each planning area?	☐	☐
2.2.13	Do objectives attempt to close only a portion of the existing gap if it is considerable?	☐	☐
2.2.14	Do all objectives tie directly to one or more goals?	☐	☐
2.2.15	Are all objectives stated in measurable terms?	☐	☐
2.2.16	Do all objectives have a time frame of two years or under?	☐	☐
2.2.17	Is there a real possibility that all objectives can be achieved in the proposed time frame without the occurrence of extraordinary, unpredicted events?	☐	☐
2.2.18	Are all levels of the organization's management involved in the setting of objectives?	☐	☐
2.2.19	Are there fewer than fifteen objectives for each element of the organization?	☐	☐
2.2.20	Are priorities established among the objectives in each planning area?	☐	☐
2.2.21	Are overall priorities established among all the objectives of the organization?	☐	☐
2.3	**Strategy Development**	☐	☐
2.3.1	Are alternative strategies developed and discussed among key decision makers?	☐	☐
2.3.2	In strategy development, are considerations given to probable future resource commitments to accomplish the strategies?	☐	☐

		YES	NO
2.3.3	Are the strategies tied specifically to the goals and objectives?	☐	☐
2.3.4	Are the strategies shared with all managers involved in setting program objectives and in implementing the action plans for meeting those objectives?	☐	☐
2.3.5	Do the strategies consider probable counterstrategies by the competition?	☐	☐
2.3.6	Is contingency planning part of the strategy development process so that the consequences of not achieving each strategy are considered?	☐	☐
2.4	**Action Planning**		
2.4.1	Do written action plans exist for the achievement of each objective?	☐	☐
2.4.2	If so, do these action plans include: • All the specific actions to be taken in sequence to meet each objective • The unit or individual responsible for each action • The start and end dates for each action • The resource that will be devoted to each action?	☐	☐
2.4.3	Are action plans reviewed by superiors before they are implemented?	☐	☐
2.4.4	Does a methodology exist for coordinating actions between two or more units?	☐	☐
2.4.5	Does a methodology exist for coordinating actions that impact two or more objectives?	☐	☐
2.4.6	Are contingency plans developed as part of the action planning component?	☐	☐

		YES	NO
2.5	**Resource Allocation and Budgeting**		
2.5.1	Does the organization budget by program?	☐	☐
2.5.2	Is the budget cycle annual?	☐	☐
2.5.3	Is a budget call issued at the beginning of the planning process?	☐	☐
2.5.4	Is the final budget developed to accommodate program plans as opposed to program plans being developed to meet predetermined budget marks for each program area?	☐	☐
2.5.5	Are funds freely transferred among program areas depending on their priority?	☐	☐
2.5.6	Is the budget routinely adjusted during the course of the budget year on the basis of performance, or shifting program priorities?	☐	☐
2.5.7	Are all program decisions made external to the budget office?	☐	☐
2.5.8	Is the organization's budget based on actual revenues expected?	☐	☐
2.5.9	Are funding decisions resolving conflicts among competing priorities made at successive management levels of the organization?	☐	☐
2.6	**Performance Monitoring**	☐	☐
2.6.1	Are regular management reports provided to all managers in the organization?	☐	☐

		YES	NO
2.6.2	If so, are the reports: • Timely • Accurate • Directly related to the operational and financial performance against established plans • Aggregated at appropriate levels for successive levels of management?	☐	☐
2.6.3	Are managers at all levels responsible for providing raw data to serve as the basis for management reports?	☐	☐
2.6.4	Are the organization's management reports void of information extraneous to performance/effectiveness?	☐	☐
2.6.5	Do managers use the reports provided in discussions with subordinate managers about their performance and that of their units and programs?	☐	☐
2.6.6	Does a mechanism exist to adjust plans and budgets if management reports indicate that this is necessary?	☐	☐
2.6.7	Are the results indicated by management reports at year end used as an integral component of the annual review and goal- and objective-setting process?	☐	☐
2.6.8	Do the performance reports of individual managers reflect the regular management reports of their programs and activities?	☐	☐
2.7	**Information Collection and Dissemination**		
2.7.1	Are the organization's information systems: • Up to date • Capable of producing accurate information in a timely manner • Free of nonessential information?	☐	☐

		YES	NO
2.7.2	Is essential information collected on a regularly scheduled basis?		
2.7.3	Do all managers receive the quantity and quality of information they need to make management decisions?		
2.7.4	Is the information collected designed to serve as the basis for management decisions?		
2.7.5	Is the information disseminated to managers in a format that facilitates the execution of their decision-making responsibilities?		
2.7.6	Is there a 2-5 year documented information systems plan for the development of future application systems?		

3.0 PRODUCT ELEMENTS CHECKLIST

3.1 Mission Statement

		YES	NO
3.1.1	Does the organization have a written statement of its mission?		
3.1.2	If so, does the mission statement succinctly establish a vision for the organization?		
3.1.3	Has the mission statement been reviewed in recent years to determine if it is still appropriate?		
3.1.4	Is the mission statement used as the basis for establish ing organizationwide goals?		
3.1.5	Have all pertinent managers been involved in the development of and accepted the mission statement?		
3.1.6	Does every member of the organization have a copy of the mission statement?		

3.2 Goals and Objectives

		YES	NO
3.2.1	Does the organization have written goals and objectives?		

		YES	NO
3.2.2	If so, are these goals and objectives clearly communicated to all members of the organization?		
3.2.3	Are the goals reviewed on at least an annual basis to determine if they are still relevant?		
3.2.4	Are the goals used as the basis for the development of operating objectives?		
3.2.5	Are the objectives reviewed prior to each planning cycle to determine the extent to which they have been met and the extent to which they are still relevant?		
3.2.6	Have at least 80 percent of the objectives changed over the last two years?		

3.3 Organizational Strategies

		YES	NO
3.3.1	Does the organization develop overall strategies to achieve the goals it has established for itself?		
3.3.2	If so, are these strategies communicated to all managers in the organization before objectives are set and action plans developed?		
3.3.3	Can a direct relationship be shown between the organization's goals and the strategies it develops?		

3.4 Component Strategies

		YES	NO
3.4.1	Does each component of the organization develop substrategies that are consistent with the organization's overall strategies?		
3.4.2	If so, are these substrategies reviewed by higher management prior to their implementation?		
3.4.3	Are all component strategies available to all managers in the organization, if only for informational purposes?		

3.5 Component Action Plans

		YES	NO
3.5.1	Does each component of the organization develop action plans for the achievement of the objectives for which it has responsibility?	☐	☐
3.5.2	If so, are these action plans reviewed for internal consistency within the component?	☐	☐
3.5.3	Are the action plans written?	☐	☐
3.5.4	Are the action plans accessible to all managers in the component?	☐	☐
3.5.5	Are all action plans available to all managers in the organization, if only for informational purposes?	☐	☐

3.6 Program Budgets

		YES	NO
3.6.1	Does the organization prepare program budgets, even if they are used only internally?	☐	☐
3.6.2	If so, are the program budgets used as the basis for regular financial reports to managers?	☐	☐

3.7 Performance Measures

		YES	NO
3.7.1	Does the organization have written program performance measures for each of its programs?	☐	☐
3.7.2	If so, are these performance measures clearly understood by each of the affected program managers?	☐	☐
3.7.3	Do the management reports received by program managers reflect progress against these measures?	☐	☐
3.7.4	Does the organization have written performance measures for each manager that are directly related to the manager's responsibility regarding meeting objectives?	☐	☐
3.7.5	If so, have the managers participated in setting these measures?	☐	☐

		YES	NO
3.7.6	And, if so, are these measures clearly understood by each manager?	☐	☐
3.7.7	Does a superior review a manager's performance with the manager against these measures on at least a quarterly basis?	☐	☐
3.7.8	Is a manager's annual performance rating based directly on these performance measures?	☐	☐

3.8 SWOT Analyses

		YES	NO
3.8.1	Does the organization prepare written results of its environmental scans?	☐	☐
3.8.2	If so, are these results made available to all affected managers in the organization?	☐	☐

Appendix C

BIBLIOGRAPHY

This bibliography does not include case-study materials supplied by the agencies or corporations.

Allen, W. B., "Strategic Planning for Freight: Issues and Research Needs--Introduction." Transportation Research Circular (Fall 1985), p. 30.

American Association of Port Authorities, "Strategic Planning: A Guide for the Port Industry." (Fall 1988).

Bates, J. W., "A Bibliography on Strategic Planning with Emphasis on Transportation," Transportation Research Board (Winter 1986).

Bryson, John M., Strategic Planning for Public and Non-Profit Organizations (1988), Jossey-Bass Publishers, San Francisco.

Bryson, John M. and Robert C. Einsweiler, "Strategic Planning." Journal of the American Planning Association (Winter 1987), p. 6.

Bryson, John M. and William D. Roering, "Applying Private-Sector Strategic Planning in the Public Sector." Journal of the American Planning Association (Winter 1987), p. 11.

Burke, A., "Strategic Planning for Transit Operations." UMTA (Fall 1982).

Carroll, Peter J., "The Link Between Performance and Strategy." The Journal of Business Strategy (Spring 1982), p. 3.

Cawelti, Gordon, "Strategic Planning for Curricular Reform." National Forum, Vol. LXVII, No. 3 (Summer 1987), p. 29.

Center for Transportation Studies, Morgan State University, Guide to Strategic Planning for Transit Properties (1988).

Cherwony, W. and M. G. Ferreri, "Strategic Planning as a Transit Management Tool," Transportation Research Record (Fall 1981), p. 1.

Daroca, Frank P., Holstrum, Gary L. and W. Thomas Lin, "Long-Range Planning and Control of Growth." Journal of Accounting (Winter 1984), p. 118.

Donaldson, Gordon, "Financial Goods and Strategic Consequences." Harvard Business Review (Spring 1985), p. 58.

Ernst & Whinney and The Ferguson Group, "Strategic Planning Survey," Ernst & Whinney-sponsored case studies (1987).

Ernst & Young, "American Competitiveness Study: Characteristics of Success" (1990).

Gakenhaimer, R., "Strategic Planning for Transportation in the Developing World." Ekistics (Spring 1984), p. 160.

Gardner, James R., Robert Rachlin and E.W. Allen, editors, Handbook of Strategic Planning (1986).

Gellert, William A., Everett, Carol T. and Ronald F. Kirby, "Strategic Management for Transit Agencies in a More Competitive Environment." The Urban Institute Project Report (Winter 1986).

Goold, Michael and Andrew Campbell, "Many Best Ways to Make Strategy." Harvard Business Review (Fall 1987), p. 70.

Gray, Daniel H. "Uses and Misuses of Strategic Planning." Harvard Business Review (Winter 1986), p. 89.

Harned, E. W., Proctor, L. M., Bowser, L. H. and R. M. Chase, "Development of a Strategic Management Process: A Case Study of the Pennsylvania DOT." Transportation Research Record (Fall 1985).

Heath, Robert L. and Associates, Strategic Issues Management: How Organizations Influence and Respond to Public Interests and Policies (1988), Jossey-Bass Publishers.

Hellebust, Karsten G. and Joseph C. Krallinger, Strategic Planning Workbook (1988).

Henily, Brendon, "Strategic Planning in Small and Medium-Size Transit Agencies." USDOT (Summer 1986).

Hensey, M., "Strategic Planning: Its Purpose, Value, and Methods." Journal of Management in Engineering (Fall 1986), p. 213.

Hertz, David B. and Howard Thomas, "Risk Analysis: Important New Tool for Business Planning." Journal of Business Strategy (1981), p. 23.

Howard, Mark, "Successfully Establishing a Strategic Planning Process." (unpublished paper, Winter 1986).

Kaufman, Jerome L. and Harvey M. Jacobs, "A Public Planning Perspective on Strategic Planning." Journal of the American Planning Association (Winter 1987), p. 23.

Lathrop, George T., "Remarks." Transportation Research Circular (Fall 1985).

Mann, J. R., "Use of Strategic Planning by a Shipper/Receiver." Transportation Research Circular (Fall 1985), p. 10.

McKewer, E. G., "Strategic Planning at the Port Authority of New York and New Jersey." Transportation Research Circular (Fall 1985), p. 46.

Meyer, Michael D., "Strategic Management in a Crisis-Oriented Environment." Massachusetts Department of Public Works (Winter 1987), p. 8.

Neuschel, Robert, "Putting Planning in Perspective and Getting a Payout." (unpublished paper, Winter 1986).

Nutt, Paul C. and Robert W. Backoff, "A Strategic Management Process for Public and Third-Sector Organizations." Journal of the American Planning Association (Winter 1987), p. 44.

O'Neill, W. J., "Use of Strategic Planning by a Motor Carrier," Transportation Research Circular (Fall 1985), p. 8.

Opitz, R. B., "Use of Strategic Planning by a Railroad," Transportation Research Circular (Fall 1985), p. 70.

Peters, Tom, Thriving on Chaos: Handbook for a Management Revolution (1987), Alfred A. Knopf.

Pfieffer, J. William, Leonard D. Goodstein and Timothy M. Noland, Applied Strategic Planning: A How-to-Do-It-Guide (1984), University Associates, Inc., San Diego.

Pflaum, Ann M. and Timothy J. Delmont, "External Scanning--A Task for Planners." Journal of the American Planning Association (Winter 1987), p. 58.

Schneider, Lewis M., "New Era in Transportation Strategy." Harvard Business Review (Spring 1985), p. 118.

Schoeffer, Sidney, Buzzell, Robert D. and Donald F. Heany, "Impact of Planning on Profit Performance." Harvard Business Review (Spring 1974), p. 137

Stein-Hudson, K. E. and B. D. McDowell, "Applying Strategic Planning in the Transportation Sector." TR News (Summer 1985), p. 20.

Wechsler, Barton and Robert W. Backoff, "The Dynamics of Strategy in Public Organizations." Journal of the American Planning Association (Winter 1987), p. 34.

THE TRANSPORTATION RESEARCH BOARD is a unit of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. It evolved in 1974 from the Highway Research Board which was established in 1920. The TRB incorporates all former HRB activities and also performs additional functions under a broader scope involving all modes of transportation and the interactions of transportation with society. The Board's purpose is to stimulate research concerning the nature and performance of transportation systems, to disseminate information that the research produces, and to encourage the application of appropriate research findings. The Board's program is carried out by more than 270 committees, task forces, and panels composed of more than 3,300 administrators, engineers, social scientists, attorneys, educators, and others concerned with transportation; they serve without compensation. The program is supported by state transportation and highway departments, the modal administrations of the U.S. Department of Transportation, the Association of American Railroads, the National Highway Traffic Safety Administration, and other organizations and individuals interested in the development of transportation.

The National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Frank Press is president of the National Academy of Sciences.

The National Academy of Engineering was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research and recognizes the superior achievements of engineers. Dr. Robert M. White is president of the National Academy of Engineering.

The Institute of Medicine was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, upon its own initiative, to identify issues of medical care, research, and education. Dr. Samuel O. Thier is president of the Institute of Medicine.

The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purpose of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both Academies and the Institute of Medicine. Dr. Frank Press and Dr. Robert M. White are chairman and vice chairman, respectively, of the National Research Council.

TRANSPORTATION RESEARCH BOARD
National Research Council
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

ADDRESS CORRECTION REQUESTED

000015M006
ROBERT M SMITH
RESEARCH & ASST MATLS SUPVR

IDAHO DEPT OF TRANSPORTATION
P O BOX 7129
BOISE ID 83707