

TCRP

REPORT 97

TRANSIT
COOPERATIVE
RESEARCH
PROGRAM

Emerging New Paradigms

*A Guide to Fundamental Change in
Local Public Transportation Organizations*

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***A Guide to Fundamental Change in
Local Public Transportation Organizations***

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TRANSIT COOPERATIVE RESEARCH PROGRAM

The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Urban Mass Transportation Administration—now the Federal Transit Administration (FTA). A report by the American Public Transportation Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA, The National Academies, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee.

Research problem statements for TCRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the TOPS Committee to formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products.

Once selected, each project is assigned to an expert panel, appointed by the Transportation Research Board. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, TCRP project panels serve voluntarily without compensation.

Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

The TCRP provides a forum where transit agencies can cooperatively address common operational problems. The TCRP results support and complement other ongoing transit research and training programs.

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The members of the technical advisory panel 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 panel, they are not necessarily those of the Transportation Research Board, the National Research Council, the Transit Development Corporation, or the Federal Transit Administration of the U.S. Department of Transportation.

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

To save time and money in disseminating the research findings, the report is essentially the original text as submitted by the research agency. This report has not been edited by TRB.

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The research team is also indebted to Ms. Dianne Schwager, TCRP project manager, who invariably brought the team and the panel back to an appropriate balance among the purpose of the TCRP program, the original project objectives, the wide-ranging avenues for examination, and the varying perspectives of the panel and the team.

Finally, the research team benefited throughout the project from the growing interest and involvement of transit industry leaders, both here and abroad, who eagerly engaged in discussions of fundamental change, who shared experiences of the emerging paradigm shift at their respective agencies, and who offered invitations to bring the new paradigm message to staff and community leaders in their local areas. A special thanks is owed the American Public Transportation Association for the many opportunities that were made available to the research team to engage industry leaders.

While many examples of an emerging paradigm shift are highlighted in this and companion reports, there are many more insightful and visionary leaders across the industry who are also pursuing fundamental changes in transit service design and delivery. The efforts of these leaders reflect a renewed commitment across the industry to explore new ground in order to enhance mobility, access, and the quality of life in communities of all sizes.

FOREWORD

*By Dianne S. Schwager
Staff Officer
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This report is the final product of TCRP Project J-8B/C. The report examines how public transportation organizations have entered an era of fundamental change and how they are responding to dramatic new expectations and imperatives that have triggered the emergence of a “new paradigm” throughout business and industry worldwide. This report describes the major ways in which public transportation agencies, as well as agencies in other industries, can adapt and have adapted to the changes. The report encourages public transportation agencies to continue making these adaptations and to “pursue the new paradigm.”

This report was developed as part of TCRP Project J-8B/C, “New Paradigms for Local Public Transportation Organizations”; it addresses three basic questions:

1. *Why* is fundamental change_a paradigm shift_needed in public transportation?
2. *What* is the scope and scale of change that might be sought?
3. *How* can fundamental change be most effectively pursued and sustained?

The project examined a host of forces and factors that are affecting and inducing change in the public and private sectors, as well as the transportation sector. The research addressed major themes and principles that are common to organizations as they undergo fundamental change and distilled lessons from other businesses and industries that may be valuable in charting the future course for public transportation organizations. Finally, the research described change that is actually taking place in selected transit agencies in the United States. This final report serves to guide the pursuit of a new paradigm in the design and delivery of public transportation services.

The report focuses on six dimensions of change: mission shift, “obsession” for the customer, collaboration, integration, information technology, and organizational structure change. These dimensions represent a framework that can be used to plan and guide fundamental change in public transit agencies of almost any size. The report documents changes that have occurred along each of these dimensions at transit systems throughout the United States and in Europe.

The appendix to this report describes the European experience in its pursuit of a new paradigm for public transportation.

TCRP Project J-8B/C has produced other products:

- Transportation Research Board of the National Academies, *TCRP Research Results Digest 55: Support for Fundamental Change in Public Transportation*, Washington, D.C., 2002.
- Cambridge Systematics, Inc., *Public Transportation in the 21st Century: Changing the Way We Do Business*, Summary Brochure, Transportation Research Board of the National Academies, Washington, D.C., 2001.

- Cambridge Systematics, Inc., *Paradigm Shifts and Fundamental Change in Business and Industry: Case Studies and Descriptive Materials*, Unpublished File Report, Project J-8B, Transportation Research Board, National Research Council, Washington, D.C., 2000.
- Cambridge Systematics, Inc., et al., *TCRP Report 58: New Paradigms for Local Public Transportation Organizations*, Transportation Research Board, National Research Council, Washington, D.C., Washington, D.C., 2000.
- Cambridge Systematics, Inc., *TCRP Report 53: New Paradigms for Local Public Transportation Organizations*, Transportation Research Board, National Research Council, Washington, D.C., 1999.
- Transportation Research Board, *TCRP Research Results Digest 24: Creating a New Future for Public Transportation: TCRP's Strategic Road Map*, National Research Council, Washington, D.C., 1998.

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A Note from the TCRP Project J-8B/C Panel Chair

In 1997, a group of public transit industry leaders gathered under the auspices of the Transportation Research Board's Transit Cooperative Research Program (TCRP). The impetus for the gathering was a shared concern that the role and future potential of public transportation in the United States was in serious jeopardy due, in large part, to the increasing inability of traditional public transportation agencies to adapt to deep-seated, fundamental socio-economic changes taking place in the United States, the emergence of a global economy, and the arrival of the Internet era. These leaders called for an assessment of the prospects for a "paradigm shift" in public transportation and in the organizations responsible for design and delivery of transit services. Their vision was one of fundamental change on a scale that could restore and expand the relevance and responsiveness of public transportation organizations in the opening decades of a new millennium.

The in-depth examination of new paradigms began in late 1998 under the guidance of a panel that defined the effort in three phases. As expected, the project has had an expansive scope. On the one hand, it has analyzed and drawn on a wide range of experiences from businesses and industries, both public and private, that have themselves undergone fundamental changes—paradigm shifts—over the past 10 to 20 years. On the other hand, the project has delved inward, exploring the instincts and the foresight of both senior transit industry managers and policymakers, as well as rising managerial stars of tomorrow, and it has taken stock of the critical perspectives and expectations of outside stakeholders, including elected officials and community leaders.

Despite the breadth of this outreach and inquiry, a remarkably clear and consistent set of themes and principles have emerged that are already beginning to reshape traditional public transportation organizations. As chair of the New Paradigms panel and as a continuing student of change in public service organizations, I believe that the New Paradigms project is both a reflection of and a beacon for the types of fundamental change that will once again place public transportation at the center of a new set of strategies to dramatically enhance access and mobility for an ever more mobile population; support economic expansion and opportunity for individuals, households, businesses, and industries alike; and ensure that our quality of life and the character of our communities is enhanced in the process.

As this concluding report of the New Paradigms project demonstrates, in 5 short years since the New Paradigms project was conceived, the U.S. transit industry has moved to a very different place. In community after community, fundamental changes of the type outlined here are under consideration and, in many cases, being aggressively advanced, changes that would have been inconceivable when the New Paradigms project began. With the conclusion of the current project, the challenge that remains is for leading transit-related institutions—TRB and TCRP, the Federal Transit Administration (FTA), and the industry itself through the American Public Transportation Association (APTA)—to continue to

- Monitor and report on fundamental changes taking place in business and industry, broadly;
- Arrange to regularly assess and discuss the implications for the transit industry of fundamental changes taking place elsewhere; and
- Create an environment, and perhaps even the incentives, to encourage and reward progress toward the establishment of a new paradigm in public transportation.

The New Paradigms panel believes that the project and its varied products point the way toward providing newer, more attractive and effective organizational choices to meet the growing local and regional travel needs of all Americans in the decades ahead. We look forward to supporting continued progress toward a new paradigm for local public transportation organizations.

*Robert E. "Buzz" Paaswell
Director, University Transportation Research Center
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and
Chair, TCRP Project J-8B/C Panel
New Paradigms for Local Public Transportation Organizations*

Summary

The New Paradigms project¹ was set in motion to explore the future direction of the transit industry based on the premise that fundamental change in public transportation organizations—a “new paradigm”—was inevitable, if not necessary, to ensure that public transportation would remain relevant in meeting the needs of the United States in the 21st century. The project has attempted to explore **WHY** such change might be needed, **WHAT** the nature of the changes might be, and **HOW** the transition to a new paradigm might occur in an industry that has remained essentially unchanged over the past 40 years.

*Premise:
Fundamental
change in public
transportation
organizations is
inevitable, if not
necessary.*

To address the question of **WHY** fundamental change may be needed, the project has examined a host of well-documented forces and factors that must be addressed if the design and delivery of public transportation services is to remain relevant in meeting mobility needs in our rapidly changing world. To one degree or another, each of our communities and local transit agencies must respond to these challenges:

- Increasing threats to our quality of life from sprawling development, rising congestion, declining air quality, and the increasing cost of public services whose performance is often declining;
- Work and life-style trends that tend to diminish the usefulness and attractiveness of traditional public transportation services;
- An institutional environment that limits the ability of transit agencies to adapt because of fragmented responsibilities, regulatory constraints, conflicting policies and goals, and restrictive “stove-piped” funding mechanisms;
- Organizational cultures and dynamics that are resistant to change and that are reinforced by outmoded policies, programs, regulations, and attitudes;

¹ The New Paradigms charge was first laid out in *TCRP Research Results Digest 24: Creating a New Future for Public Transportation: TCRP’s Strategic Road Map*, 1998.

- Continuing subordination of residents' needs for overall mobility and quality of the customer's travel experience to operational concerns; and
- Lagging progress in the deployment of state-of-the-art information systems and other emerging technologies that have become essential in today's Internet age.²

The same forces and factors also confront most other businesses and industries to varying degrees, as well as our public transportation agencies. Through the latter part of the 20th century, the most visionary and aggressive of these businesses, industries, and leaders launched change initiatives with the intent of fundamentally refocusing and reorganizing their organizations and traditional business practices to be more responsive and adaptable in a digital economy and society where change and instant communications have become the norm.

Recent changes in business and industry point the way toward a new paradigm for public transportation organizations.

There are noteworthy examples of fundamental change that are underway in both the public and private sectors as well as within and outside of the transportation sector. Among the most significant of these have been the "logistics revolution" in intermodal freight; the emergence of airline alliances; the customer-oriented technologies and performance measurement systems introduced into the package delivery business; the far-reaching partnering and collaborative arrangements found in both manufacturing and service industries; and the multimodal integration of transportation service delivery in many parts of Europe.

While aspects of fundamental change in each of these industries are examined and reported intermittently, little has been done to explore the major themes and principles that may be common to each experience. Likewise, little has been done to distill from fundamental change in other businesses and industries lessons that might be of value in charting a future course for public transportation organizations. The New Paradigms project has attempted to survey a wide range of these experiences to reveal **WHAT** types of

² These forces and factors were examined at the outset of the New Paradigms project and described in *TCRP Report 53: New Paradigms for Local Public Transportation Organizations: Forces and Factors that Require Consideration of New Paradigms*, Washington, D.C., 1999.

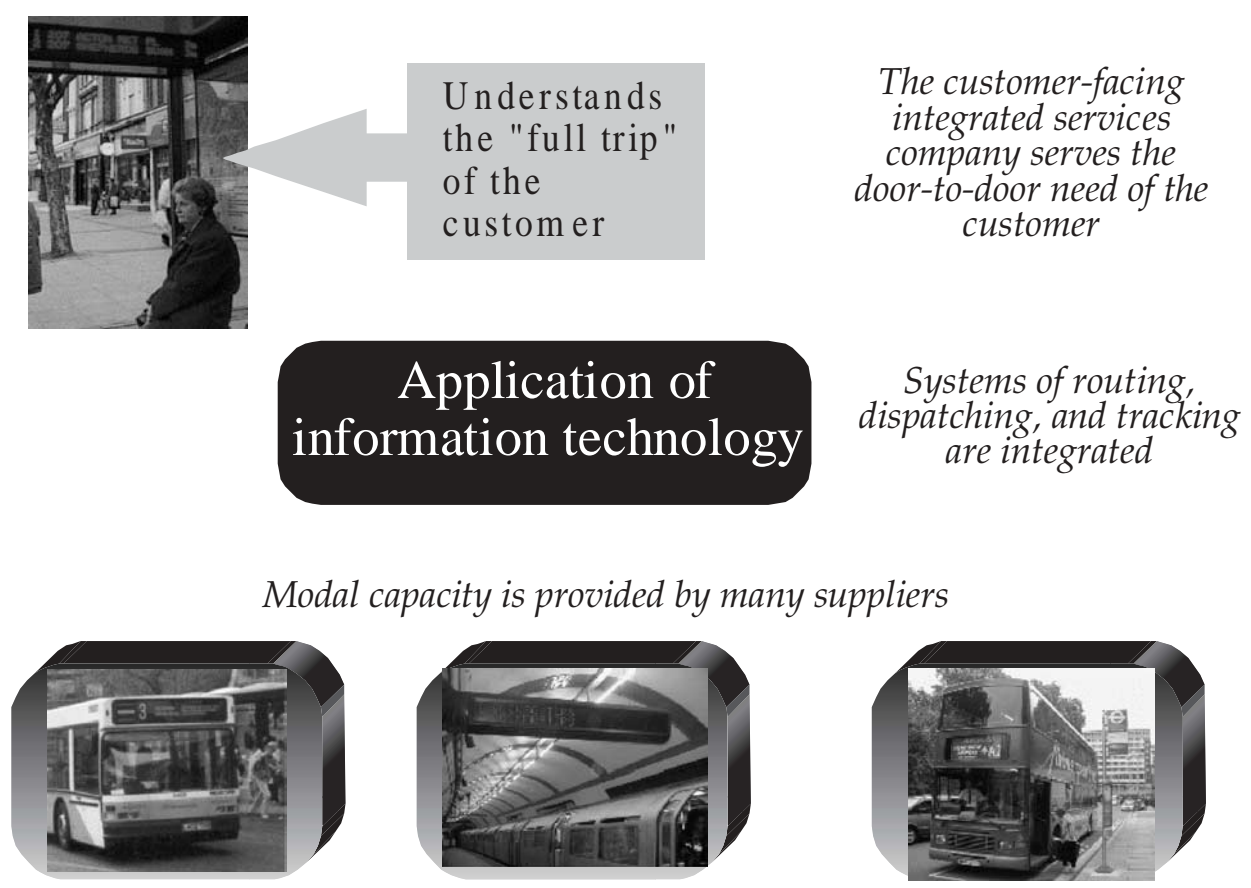
fundamental change may be on the horizon.³ Emerging from this review are two key findings:

1. There are, indeed, powerful common themes and principles that are evident in virtually all of the examples of fundamental change underway in business and industry; and
2. The emergent themes and principles drawn from these experiences have immediate, direct application in the public transportation arena.

Perhaps the most basic finding has been the formulation of a three-tiered organizational model of how the public transportation organization of tomorrow might be structured and its activities guided. The three-tiered model represents an accurate, generic picture of how corporate missions and the organization of corporate activities are changing.

³ Lessons from fundamental changes in other businesses and industries and their implications for the transit industry were described in *TCRP Report 58: New Paradigms for Local Public Transportation Organizations: Task 5 Report—Opening the Door to Fundamental Change*, Washington, D.C., 2000.

Figure S.1 The Emerging New Paradigm
A Three-Tiered Organization Model



The three-tiered model embodies several basic principles:

- (Re)establishment of the **quality of the customer's experience** as a central, strategic focus for the organization;
- Separation of **strategic responsibilities** focused on the quality of the customer's experience from responsibility and accountability for the actual **production of goods and services**;
- **Systems of performance measurement** that bring into balance the quality of the customer's experience (the emerging strategic goal) and the efficiency with which resources are used (the production goal);

- Reliance on expanded **partnerships and alliances** with both public and private organizations and service providers (for-profit and not-for-profit) to ensure responsiveness to shifting customer needs and cost effectiveness in meeting them; and
- Introduction of **state-of-the-art information technologies** that can link the organization to both its partners and its individual customers in real time.

These themes and principles describe in a general sense a new paradigm for public transportation organizations. The agenda for pursuing fundamental change, however—the answer to the question of **HOW** a paradigm shift can be accomplished—can be framed by translating these themes and principles into six critical dimensions of change that are increasingly evident within the transit industry and outside of it. If the idea of a paradigm shift is embraced, then discrete, sustained actions will likely be required along each of the six dimensions described in Table S.1 to move an organization toward a new paradigm.

The imperative to change in fundamental ways across each of these dimensions was discussed in four transit industry focus groups. In focus groups, transit industry leaders revealed an extraordinary level of agreement on the need for progress across these six key dimensions of change. More significantly, however, there has been a growing movement in the industry over the last 2 years to actually undertake fundamental changes along these dimensions.

Until recently, transit industry observers tended to view organizational changes as unrelated, isolated responses to peculiar local cir-

Table S.1 Six Dimensions of Fundamental Change Leading to a New Paradigm

1. Mission Shift	Core mission shift from simply providing a form of capacity with assets you own to a broader responsibility for <i>managing mobility</i> , managing a wide range of assets...
2. “Obsession” for the Customer	Measures of success and performance are increasingly focused on the <i>quality of the customer experience</i> ...
3. Collaboration	Collaboration across modes, organizations, and jurisdictions has become a fundamental strategy ...
4. Integration	Integration of assets, services, and business functions is a common feature of emerging business models...
5. Information Technology	Effective links to customers and partners are dependent on deployment of state-of-the-art information technologies like universal fare systems; real-time, on-street customer information; and unified scheduling and dispatching systems...
6. Organizational Structure Change	New business units, functions, skills, and business processes are inevitable with change in these other dimensions...

cumstances and conditions. When the changes taking place in an increasing number of transit agencies, both large and small, are viewed together, however, they can be described and interrelated using these six critical dimensions of paradigm shift. In each of the six dimensions, the progress of an agency toward fundamental change—a new paradigm—may be marked at one of the following stages:

- Conceptualizing fundamental change,
- Formally planning fundamental change,
- Implementing or deploying fundamental changes in a staged or limited way, or
- Operating under a new organizational framework.

Progress in each of the major dimensions of change can be charted generally across stages and may take place unevenly, as shown in Figure S.2

- Periodically survey on a national scale progress across the six dimensions to help ease the change for others and report the consequences of actions taken.
- Regularly convene a “change leadership” group to examine actions taken by the most active and aggressive change agents and review their motives, expectations, approaches, and consequences.
- Develop a rolling series of case studies of paradigm shift and fundamental change.
- Conduct a periodic scan and report of paradigm shift and fundamental change in other businesses and industries to continuously draw on experiences outside the transit industry.
- Periodically convene a Paradigm Shift conference.
- Pursue a research agenda to broaden and deepen the new paradigm inquiry with European counterparts.
- Consider linking these and other activities as part of a more formal ongoing agenda through the formation of a program or center for strategic change.

The transit industry is in a very different place from where it was just 4 or 5 years ago. Fundamental change is underway and is being pursued more aggressively and by an increasingly larger group of agencies and leaders than was imaginable when the New Paradigms project began.

It is the sincere hope of the New Paradigms research team that the continuing agenda outlined above can be launched as an outgrowth of the J-8 project and that the results will serve to both intensify the scope and pace of adaptation in the industry and enhance the relevance of, support for, and use of public transportation on a scale not yet seen in the history of transportation in the United States.

1.0 Introduction

The search for a new paradigm for public transportation organizations has involved a wide-ranging examination of three basic questions:

- **WHY** is fundamental change in traditional transit organizations inevitable if not necessary?
- **WHAT** is the nature of the organizational change or changes that are likely to emerge?
- **HOW** will public transportation organizations that have remained largely unchanged over the last 40 years successfully pursue and arrive at a new organizational paradigm?

Companion documents to this report examine the first two of these questions—*why and what*—in some detail.⁴ The purposes of this, the final report of the New Paradigms project, are to

- Further elaborate on the principles and themes that characterize a new paradigm for transit organizations;
- Outline the key dimensions of fundamental change that may define and guide pursuit of a new paradigm; and
- Chart the changes in these dimensions that are actually taking place in selected transit agencies, both large and small, across the country.

In effect, this report becomes a guide—to the degree that a guide can be written—to the pursuit of a new paradigm in the design and delivery of public transportation services in the new millennium.

The challenge to embrace fundamental change is not unique to the transit industry. The path ahead is well marked, but the sign posts may give travelers some pause. To clearly illustrate the challenge ahead, the New Paradigms project adopted as a major theme an

⁴ *TCRP Report 53, Appendix B, “The Challenge to Change: Forces Driving a Paradigm Shift in Public Transportation Organizations”*; and *TCRP Report 58, Appendix C, “Evidence of Fundamental Change from Business and Industry.”*

imperative offered by management guru Peter F. Drucker to all businesses and industries looking ahead to the 21st century: “The first policy—and the foundation of all others—is to abandon yesterday.”⁵

While this admonition may seem extreme in view of 40 years of transit operations under the same public-sector governance and management framework, an increasing number of transit agencies here and abroad are aggressively pursuing fundamental changes in traditional organizational models and business practices that point the way toward the emergence of a new paradigm. This report is the first attempt to document the breadth and scope of the changes now in progress. Hopefully, it demonstrates that what may at first appear to be isolated experiences in a few individual agencies are, in fact, indications of a broad frontier across which an ever increasing portion of the industry is moving.

A paradigm shift is, indeed, underway. What remains is to encourage it, support it, and chart the change on a continuing basis.

■ 1.1 Organization of the Report

The report that follows focuses on current examples of fundamental change that illustrate the path that organizations may follow in their efforts to evolve a new organizational paradigm that better meets the regional mobility needs of the 21st century United States. In addition, the report contains summary evidence from earlier documents prepared for the New Paradigms project.

Section 2.0 presents the basic themes and principles that lie at the heart of a paradigm shift, drawing on the experiences of a host of businesses and industries both within and outside the transportation sector. It is from these experiences that a basic three-tiered model of a new organizational paradigm for public transportation has emerged.

Section 3.0 presents six dimensions of fundamental change across which many transit agencies today have begun to move. These six dimensions and the actions of agencies now pursuing fundamental change along each can be viewed as a guide for those wishing to seek a new paradigm in service planning and delivery and enhanced personal mobility.

⁵ Drucker, Peter F. *Management Challenges for the 21st Century*, Harper Business, New York, New York, 1999.

Section 4.0 contains a series of observations, at varying levels of detail, drawn from the ongoing experiences of agencies now in the throes of fundamental change across the dimensions described in Section 3.0.

A word of caution is in order, however. In none of the cases noted can it be said that a paradigm shift has been achieved. The changes reported are works in progress, and the organizations and agencies involved all have significant challenges ahead to realize the full potential of the changes they have set in motion. At the core of the New Paradigms effort, in fact, is the notion that the fundamental change being sought is never achieved completely. Instead, the goal is to create an organization that is continually responding, adapting, and leading the changes necessary to meet emerging needs in a world of continual change. Among the organizations and agencies cited, however, all have taken Drucker's admonition to heart to one degree or another, leaving behind increasingly out-dated, unresponsive organizational models and business practices in favor of newer, more responsive and adaptive ways of bringing public transit services to residents and providing residents with more attractive and effective travel options.

Section 5.0 presents basic conclusions from the New Paradigms research as well as an agenda for continued examination of fundamental change in the U.S. transit industry.

Finally, the appendix provides a more detailed discussion of ongoing experiences in Europe.

2.0 Key Themes and Principles in the Emergence of a New Paradigm

The breadth and pace of change in business and industry has been breathtaking in recent years. Continued rapid socioeconomic change, coupled with the emergence of the Internet era and the rise of the digital economy on a global scale, have triggered fundamental changes in organizational structures, business models, and business practices in all sectors of the economy, both public and private, including transportation.

■ 2.1 The Forces of Change: Common Challenges to be Reckoned With

To explore changes and their relevance to the nation's public transportation organizations, the research team first undertook to assess the forces and factors that provide the impetus for fundamental change on such a broad scale, focusing on the circumstances that confront transportation agencies and providers today. Findings from this assessment are presented in *TCRP Report 53: Forces and Factors that Require Consideration of New Paradigms*. They include six challenges to the status quo, each of which impacts virtually every local public transportation organization to one degree or another:

1. **The quality of life and the economic vitality of our urban areas is increasingly threatened** by sprawling development, rising congestion, the increasing cost of public services whose performance is often declining, and our increasing reluctance to commit more tax dollars to address these problems under traditional programs.
2. **Socioeconomic trends tend to diminish the relevance of traditional public transportation services.** These trends include single-parent working households, two-earner households, flexible work schedules, and widely dispersed service-sector employment opportunities.

3. **The “enabling environment” in surface transportation is replete with fragmented responsibilities**, as well as regulatory constraints, conflicting policies and goals, and restrictive “stove-piped” funding mechanisms that often limit the ability of organizations to adapt quickly and frustrate efforts to enhance responsiveness to shifting travel markets and changing conditions.
4. **The organizational culture and dynamics of local public transportation organizations historically have posed a barrier to change** and are reinforced by long-standing policies, programs, and regulatory frameworks, as well as deep-seated, change-resistant perspectives and attitudes on the part of many industry managers and many in the labor force.
5. **The quality of the customer experience has not fully emerged** as a dominant focus in the delivery of local public transportation services as it has in many other service and commercial enterprises. Performance measurement is dominated by operational, output-based measures.
6. **Local public transportation organizations historically have been slow in the deployment of state-of-the-art information and other emerging technologies** that have become commonplace and, in fact, are increasingly expected by customers in most other markets and industries.

To one degree or another, every local public transportation organization is confronting pressures for change stemming from these forces and factors. They define a common dilemma in the transit industry and provide a powerful rationale for the search for a new paradigm.

■ 2.2 Responding to the Challenges: Emerging Themes and Principles for a New Paradigm

The challenges outlined above present a continuing dilemma to a wide range of businesses and industries, both public and private. Many have already adapted or launched major change initiatives that have led them to very different and far more effective ways to do business in response to these challenges.

The motives for pursuing fundamental organizational change cover a wide spectrum. In some cases, fundamental change has been brought on by major crises in the performance of organizations. In some cases, popular or political mandates have driven fundamen-

tal change. In still other cases, forward-looking leaders have anticipated the need for fundamental change well in advance of crises in their respective industries or in the performance of their own organizations. Regardless of the impetus for change, there are enormous lessons to be learned from these experiences.

If the question of **WHY** fundamental change is needed in local public transportation organizations is confirmed by the unrelenting common challenges outlined above, the lessons from other businesses and industries provide a partial answer to **WHAT** form the changes might take.

What Recent Experiences Reveal

The research team reviewed recent changes in a wide range of businesses and industries to better understand the nature and scope of responses to many of the same basic challenges that confront local public transportation organizations. The review involved observations about

- Fundamental changes in other industry sectors, both public and private, including telecommunications, energy and utilities, steel, freight, package delivery, and public education;
- Fundamental changes in major businesses both in and out of the transportation sector, including General Electric, freight giants SeaLand/CSX and American President Lines, major airlines like Delta and United, and package delivery leaders like Federal Express and United Parcel Service; and
- Fundamental changes being undertaken in transit and transportation agencies in the United States and around the world, including Hong Kong, the Netherlands, Sweden, Germany, France, and the United Kingdom.

The key findings from these initial assessments have been presented in *TCRP Report 58: Opening the Door to Fundamental Change*.

From these experiences, a number of consistent themes and principles have emerged that provide a framework for fundamental change in local public transportation organizations. These themes and principles include

- (Re)establishment of the **quality of the customer's experience** as a central, strategic focus for the organization;
- Separation of **strategic responsibilities** focused on the quality of the customer's experience from responsibility

and accountability for the actual production of goods and services;

- **Systems of performance measurement** that bring into balance the quality of the customer's experience (the emerging strategic goal) and the efficiency with which resources are used (the production goal);
- Reliance on expanded **partnerships and alliances** with both public and private partners and providers (for-profit and not-for-profit) to ensure responsiveness to shifting customer needs and cost effectiveness in meeting them; and
- Introduction of **state-of-the-art information technologies** that can link the organization to both its partners and its individual customers in real time.

As suggested above and in *TCRP Report 58*, these somewhat abstract themes and principles are clearly evident in the experiences of a wide range of businesses and industries, both private and public. Once monolithic, vertically integrated steel companies have reorganized around core functions, out-sourced a wide range of activities, and introduced mini-mill and other technologies to better suit niche markets and customers. Energy producers, independent power suppliers, and utilities have entered into alliances and partnerships, sharing power distribution grids in the interest of increasing customer loyalty through more reliable service and prices. Technology leaders, such as Cisco Systems, focus strategically, and almost exclusively, on managing the quality of service and products and on responsiveness to customers through web-based technologies while outsourcing the vast majority of actual production through a network of partnering enterprises.

More importantly for public transportation agencies, the same themes and principles have emerged simultaneously in the transportation sector worldwide.

Intermodal Freight. In the 1980s, leading intermodal freight companies moved away from a traditional focus on maximizing the use of the assets they owned to partner with former competitors, focusing aggressively on customer loyalty through improved service quality. In this period, Maersk and SeaLand/CSX, for example, rationalized and optimized independently owned and operated assets such as ships and terminal facilities in the interest of better overall service to the customer.⁶

⁶ A formal merger of the shipping units of the two companies has recently been proposed to further integrate sales and related business functions.

Package Delivery. The U.S. Postal Service has introduced new information technologies and entered into partnership agreements with private vendors like Mail Boxes, Etc., to expand the availability of postal services to customers. Further expansion of private partnerships is on the horizon as a response to dramatic changes in the market place, including the shift in communications to web-based technologies, and continuing changes in the cost structure of guaranteed door-to-door mail delivery. Federal Express has also begun to shift its focus away from a preoccupation with its own assets to strategic partnerships and arrangements to move parcels using the assets of former competitors, including UPS, in order to enhance customer service and loyalty.

“ . . . so now, FDX is preparing to embark on its new strategy . . . It’s quite possible that FDX’s system will route deliveries on ships, airplanes, or trucks owned by other companies, even UPS.”

*Frederick W. Smith
CEO, Federal Express
Wall Street Journal
November 4, 1999*

European Transit Agencies. Across Europe, passenger transportation agencies are evolving in a similar direction by moving away from narrowly focused operation of, and investment in, separate systems of facilities and assets, toward integrated management of multimodal passenger transportation systems on a regional, national, and even continental scale. Just as the freight and package industries have broadened their mission and strategic focus to “managing logistics” on behalf of customers rather than simply providing capacity, European transit agencies are increasingly focused on “managing mobility” for regional residents and visitors through efforts to integrate a wide range of transportation services.

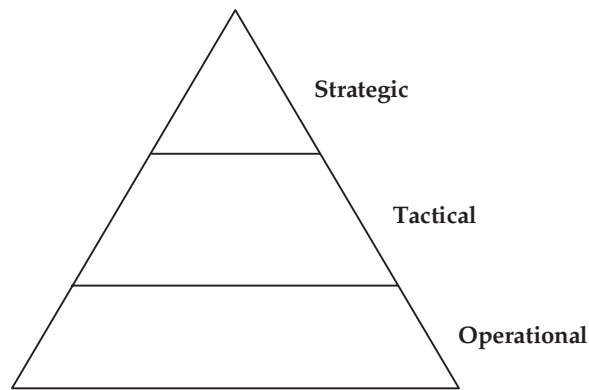
Experiences of selected European transit systems were compiled at the beginning of the New Paradigms project and described in *TCRP Report 58*. In the intervening time, significant change has continued to take place in transit agencies across Europe. The nature of these more recent changes serve to reinforce the general themes and principles noted above, including shifts in organizational mission and focus, agency reorganization, and new business principles and practices supported by state-of-the-art information technologies.

The changes taking place in transit organizations across Europe are occurring on two levels with two major motivating forces. The first set of changes stems from legislation and policy pronouncements within the European Union (EU) with respect to the future structure of local transit enterprises in Europe’s major metropolitan areas. The second set of motive forces are those that reflect more localized policies and philosophies on how public authorities can manage the flow of public funds to create the best possible match between services and mobility needs.

Over the past 2 years, the management structures governing public transportation services have evolved in Paris, London, and other cities in ways that echo organizational changes made in a host of private businesses and industries. Appendix A provides a more detailed description of the evolving alternative transit management,

governance, and organizational structures that are emerging in London and Paris. The central theme in both cases is that the design and overall management of services can be separated from the execution or provision of service, allowing whatever mechanism for service delivery is most efficient and appropriate for the situation. This overarching concept is illustrated in Figure 2.1 as a means of highlighting the issues to be addressed in moving away from the historic monopolistic structure of transit organizations. This framework was used by European transit leaders to explain to elected policy makers the nature of the organizational and structural relationships that must be reconciled, including the respective roles of public and private parties at each level. Each of these three layers and sets of responsibilities needs to be addressed in the development of a new structure for transportation organizations.

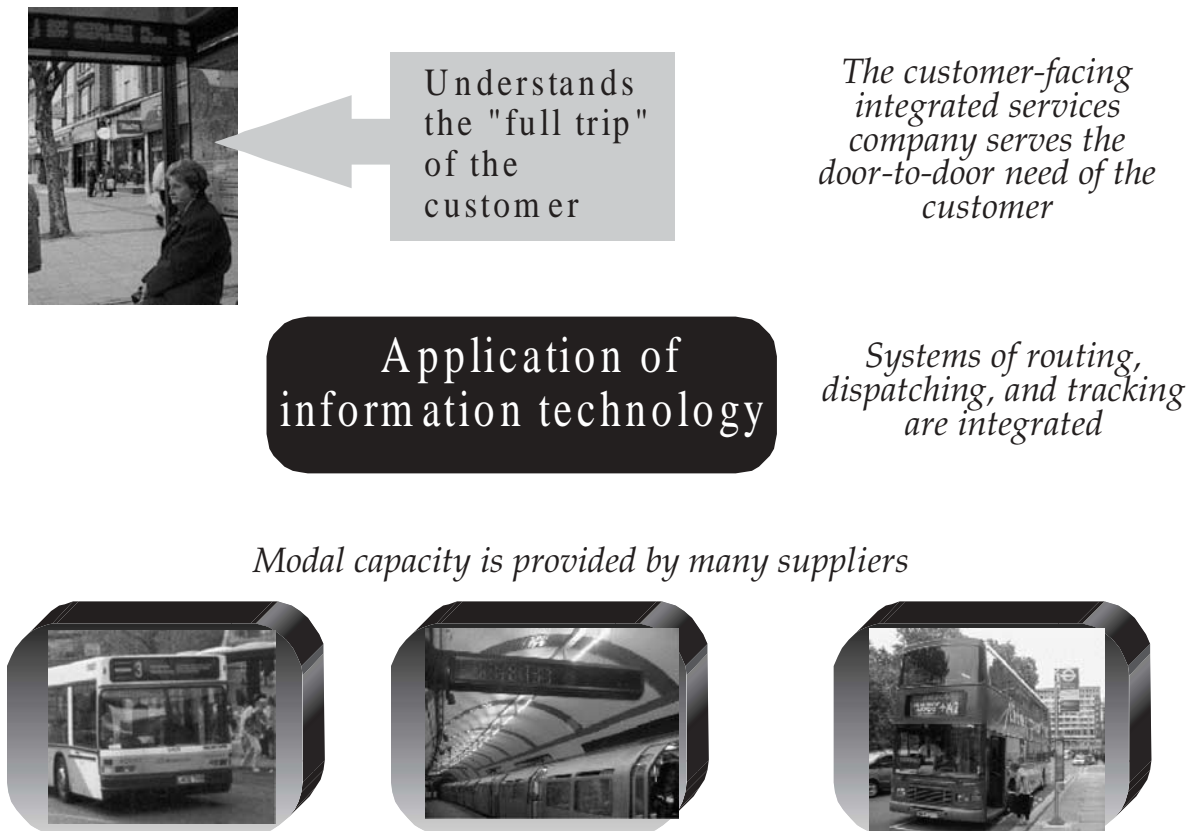
Figure 2.1 Three Layers of a Local Transportation Organization



The Emerging “Model”

Figure 2.2 explains the hypothetical model in somewhat more applied terms, allowing a clearer picture of the 21st century transportation organization to emerge, reflecting experiences that are common to all of the examples noted above. The strategic interest lies in creating an organization whose principal responsibility is to provide the customer with knowledge of, and ease of access to, a range of services that can serve individual traveler needs and that has the capacity to continuously monitor, evaluate, and ensure the quality of the travel experience.

Figure 2.2 The Emerging New Paradigm
A Three-Tiered Organization Model



The role of information technology becomes critical in continually serving and tracking customer needs, customer experiences, and the operation of the network.

The question of what organization actually owns or operates the equipment becomes less significant as long as the quality of the service from a customer standpoint and from an operational standpoint is effectively monitored and adjusted.

The implications of these varied experiences for local public transportation organizations seeking a new model or paradigm are clear:

- In each case, the client deals with the integrated service provider, or "mobility manager," whose principle concern is for the client's entire door-to-door trip;

- In each case, information technology is a critical “enabler,” allowing service to be designed to meet individual customer’s needs in real time, while allowing the organization to track and evaluate the quality of the services provided; and
- In each case, the modal capacity need not be provided on the dedicated assets owned or operated by the company, but can be provided by a mix of public and/or private partners or providers, both for-profit and not-for-profit.

What has emerged in this three-tiered model is the basis for an operational definition of “mobility management” as a core role and responsibility for the transit/transportation agency of tomorrow.

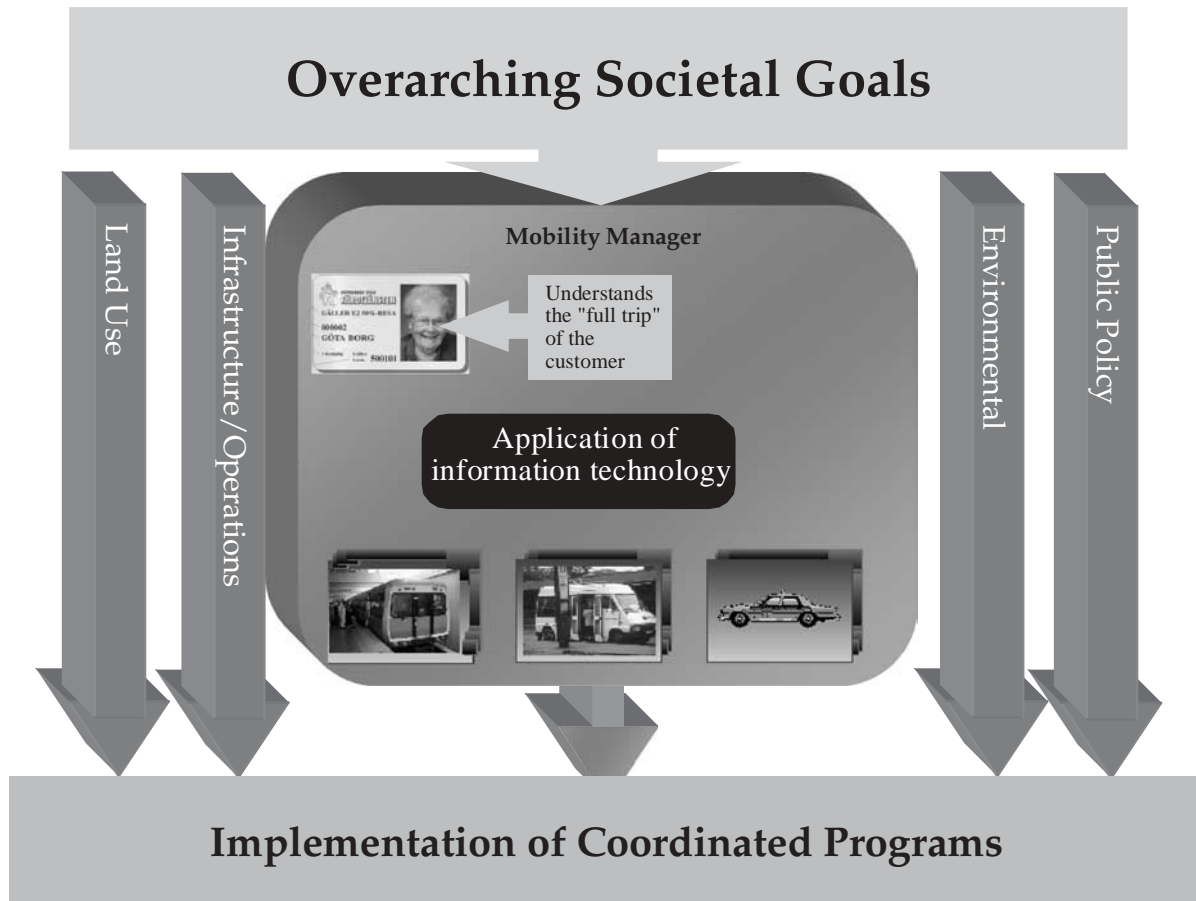
Supporting the “Mobility Management” Mission and New Organizational Model

Success in embracing and executing the mobility management mission—in serving and accommodating far larger numbers of users—requires more than reconstituting the organization as shown in Figure 2.2. The mobility management mission cannot be solely based on new approaches to the manipulation of the **supply** of transportation services. The success of this new paradigm in organizational structure and mission, in fact, will be limited unless the mobility management mission and practices can be aligned and integrated with the actions and policies that shape travel **demand** and management of the overall transportation network. Figure 2.3 illustrates this set of relationships, suggesting that the organization responsible for mobility management cannot realize its full potential unless there is mutual support among organizations, policies, and programs that guide

- Land use planning and development;
- Investment in, and operation of, other transportation infrastructure, including roads, parking, shared facilities, and sidewalks;
- Environmental strategies for clean air, energy use, and resource management; and
- Other public policy decisions, including pricing, access, taxation, and equity.

Each of these areas is the responsibility of one or more organizations or agencies that typically lie outside the realm or reach of transportation decision makers. Linkages in two respects do exist, however,

Figure 2.3 Integrating Mobility Management with Broader Policies and Programs



between these independent organizations and the policies, programs, and resources they manage. The first link lies in the assumption that each organization or agency is pursuing common community goals (e.g., improving the quality of life and protecting the character of our communities) so that there are shared goals and objectives around which to collaborate and build partnerships. The second link involves the likelihood that there will be a high degree of overlap among elected leaders who have policy-making responsibilities in these seemingly independent issue areas, organizations, and agencies, providing further opportunities for mutual support and reinforcement.

These linkages are beginning to be recognized and acknowledged on a wider basis and provide some hope that the larger collaborative relationships highlighted in Figure 2.3 can be built, be made operational, and lead to greater progress in achieving broad-based community goals.

3.0 A Guide to Paradigm Shift: Six Dimensions of Change

In examining the experiences that have led to the definition of a new paradigm for local transportation organizations, there is more in common than the broad themes and principles that describe **WHAT** a new paradigm for local public transportation organizations might look like. Throughout the examples of fundamental change that have been explored, one can trace a consistent pattern in **HOW** these changes have come about.

In simplest terms, the transformations that have taken place—the emergence of new organizational paradigms—have resulted from fundamental changes along six dimensions. These dimensions represent a framework that can be used to plan and guide fundamental change—the creation of a new paradigm—in a transit or transportation agency or organization of almost any size, as examples in Section 4.0 demonstrate. The six key dimensions of fundamental change are highlighted in Table 3.1, and each is discussed further below.

■ 3.1 Mission Shift

At the center of the new paradigm is a shift in the mission of the organization away from simply maximizing the use of the assets it owns to provide capacity to a broader responsibility for managing mobility regardless of whose assets are used. Evidence suggests that this shift in basic mission is being embraced more and more widely throughout the transit industry, both in the form of official mission statements that reflect a commitment to manage mobility and in the increased use of, and arrangements with, other service providers.

This need to embrace a mission shift has been borne out in the commentary of industry leaders who have participated in four focus groups on fundamental change conducted by the research team

Table 3.1 Six Dimensions of Fundamental Change Leading to a New Paradigm

1. Mission Shift	Core mission shift from simply providing a form of capacity with assets you own to a broader responsibility for <i>managing mobility</i> , managing a wide range of assets...
2. “Obsession” for the Customer	Measures of success and performance are increasingly focused on the <i>quality of the customer experience</i> ...
3. Collaboration	Collaboration across modes, organizations, and jurisdictions has become a fundamental strategy...
4. Integration	Integration of assets, services, and business functions is a common feature of emerging business models...
5. Information Technology	Effective links to customers and partners are dependent on deployment of state-of-the-art information technologies like universal fare systems; real-time, on-street customer information; and unified scheduling and dispatching systems...
6. Organizational Structure Change	New business units, functions, skills, and business processes are inevitable with change in these other dimensions...

over the past year.⁷ In each instance, there was nearly unanimous agreement on the following:

- The “mobility management” mission needs to be defined more clearly and addressed more aggressively and effectively on a regional, multimodal scale.
- Public transit agencies are in an ideal position to assume this responsibility.
- Fundamental changes in how local public transportation organizations operate will be needed to carry out the mobility management mission successfully.

⁷ New Paradigms focus group sessions were held in conjunction with the 2002 APTA General Managers Seminar (February 2, 2002), the APTA Bus Conference (May 5, 2002), the Community Transportation Association of America Annual Meeting (May 19, 2002), and the Florida Public Transportation Association Annual Meeting (October 22, 2002).

In addition to this general support for mission shift, transit agencies around the country are examining and embracing the broader mission to manage mobility. The evidence can be seen in dozens of organizational mission statements and the characterizations of agencies' emerging strategic focus. A few examples taken from current web sites and documents are noted below with emphasis added on key, relevant phrases:⁸

- The **Washington Metropolitan Area Transit Authority (WMATA)** mission speaks of “. . . *promoting regional mobility . . .*,” while WMATA's enabling legislation, an interstate compact, empowers WMATA to “plan, develop, finance, and *cause to be operated* improved transit facilities . . .”⁹
- The **Transit Authority of River City (TARC)** in Louisville, Kentucky, “. . . explores and implements *transportation opportunities . . .*”¹⁰
- The **Los Angeles County Metropolitan Transportation Authority (LA MTA)** is focused on “. . . continuous improvement of an efficient and effective *transportation system . . .*” as well as providing leadership in “. . . safety, *mobility*, and customer satisfaction . . .”¹¹
- The **Ann Arbor Transportation Authority (AATA)** is committed to “. . . contribute to *the management of mobility* in Ann Arbor and the Urbanized Area.”¹²
- The **Regional Transportation Authority (RTA)** in Chicago, Illinois, pursues a mission to “. . . ensure financially sound, comprehensive, and *coordinated public transportation* for Northeastern Illinois . . .”¹³

⁸ The examples that follow are taken from transit agency web sites and/or recent planning documents.

⁹ www.wmata.com/about/board_gm/01report/section01.cfm.

¹⁰ www.ridetarc.org/insideTARC/WhoWeAre.htm.

¹¹ www.mta.net/other_info/about/mission_vision.htm.

¹² <http://theride.org>.

¹³ www.rtachicago.com/aboutrta/history.asp.

- **ValleyRide** in Boise, Idaho, is committed to “. . . move people throughout the Valley by *coordinating and providing* convenient public transportation services . . .”¹⁴
- The **San Diego Metropolitan Transit Development Board (MTDB)** served as the “. . . *policy-setting and overall coordinating agency* for public transportation in the region.” (Under state law, the MTDB, the San Diego Association of Governments [SANDAG, the region’s metropolitan planning organization, or MPO], and the North County Transit District [NCTD] are now being consolidated. The new consolidated agency will assume this broader function and perspective.)¹⁵
- The **Central Ohio Transit Authority (COTA)** in Columbus, Ohio, is charged with providing “. . . *customer-focused mobility solutions* . . . through strategic partnerships, innovative planning, and implementation options . . .”¹⁶
- The **Santa Clara Valley Transportation Authority (SCVTA)** in San Jose, California, already has combined transit and highway responsibility and a mission to “. . . provide the public with a . . . countywide transportation system . . .” that “*increases access and mobility* . . .”¹⁷
- The **Utah Transit Authority (UTA)** in Salt Lake City, Utah, has a mission to ensure the provision of “. . . relevant public transportation that enhances all citizens’ *mobility and accessibility* . . .”¹⁸
- **Sound Transit** in the Seattle, Washington, region has a multi-faceted mission to “. . . build and *provide for the operation* of the regional express bus, commuter rail, and light rail services and facilities as described in *Sound Move*, Sound Transit’s 10-year transit systems plan, *to create an integrated, regional high-capacity transportation system* serving the three-county RTA Sound Transit District, and *to do so in partnership* with public agencies and jurisdictions, relevant private sector and other interests, and the citizens we serve.”¹⁹

¹⁴ www.valleyride.com/index.asp.

¹⁵ www.sdcommute.com/agencies/mts/mtdb.

¹⁶ www.cota.com/default.asp?intPageID=16&intSectionID=1.

¹⁷ www.vta.org/inside/about/vision.html.

¹⁸ UTA mission as expressed by the UTA General Manager in prior web communication.

¹⁹ www.soundtransit.org/stnews/publications/stmission.htm.

The shift in mission characterized above is farther advanced in actual application in many European transit organizations. The Zürcher Verkehrsverbund (ZVV), the long-standing multi-agency coordinating body in Zurich, Switzerland, has been redefined as the *organizer of mobility* for the region, coordinating a wide variety of mobility services while aggressively promoting this broader mission and role to the public. Similarly, the Bremer Strassenbahn AG (BSAG), the public transit agency in Bremen, Germany, has evolved a multimodal mission that includes management of regional car-sharing, a program now being introduced in the United States. Access to the Bremen car-sharing program by purchasers of 12-month regional transit passes has substantially increased pass sales. (See Appendix A.)

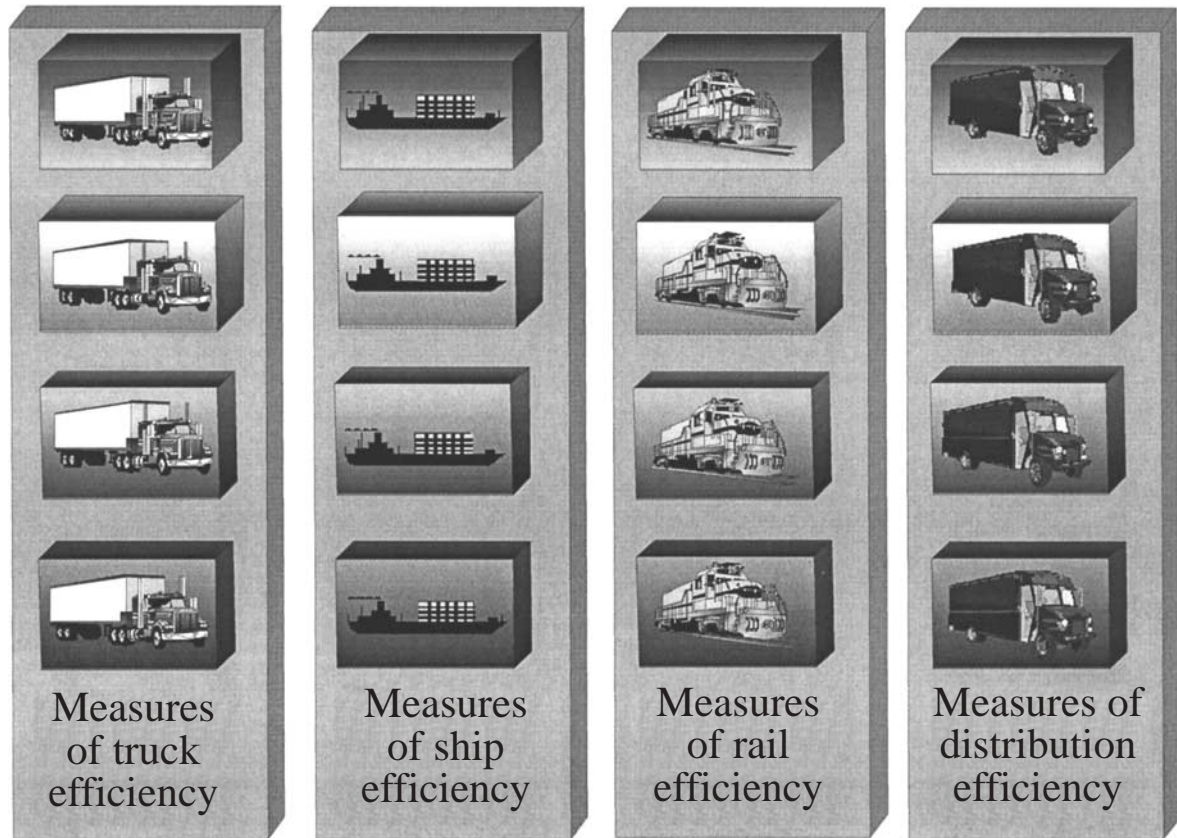
It is clear from these examples that a mission shift toward managing multimodal mobility on behalf of the customer is well underway internationally and is being embraced both officially and unofficially by an increasing number of transit agencies in the United States. While increased definitional clarity will certainly evolve for the mobility management mission, it is also likely that the scope and pace of the shift in mission will vary considerably from one region to another. For virtually every agency embarking on a shift in mission, however, there will be significant implications for organizational structure, skill mix, and the role of technology.

■ 3.2 A New “Obsession” for the Customer

The second critical dimension of change is the pursuit of a new balance between success measured in terms of internal operating efficiency and performance measured from a customer perspective. The mission shift described above, in fact, requires a heightened ability to measure the quality of the customers’ experience. Elevating concern for the *quality of the customers’ experience* as a fundamental strategic focus of the organization implies that procedures in place can adequately measure the quality of those experiences *from the customer’s standpoint*.

Traditionally, the transit industry has relied on production-oriented output measures of performance—efficiency, effectiveness, and productivity—in the use of available resources. Figure 3.1 illustrates this orientation within the freight industry, where traditional management concern focused on independent measurement of the efficiency of separate providers of capacity. During the 1980s, in a period referred to as the “logistics revolution,” leading carriers began to reorient their measures of performance to capture the full experience of the customer in terms most important to the customer, as illustrated in Figure 3.2. In the process, a new balance was

Figure 3.1 Modal Output Measure of Performance

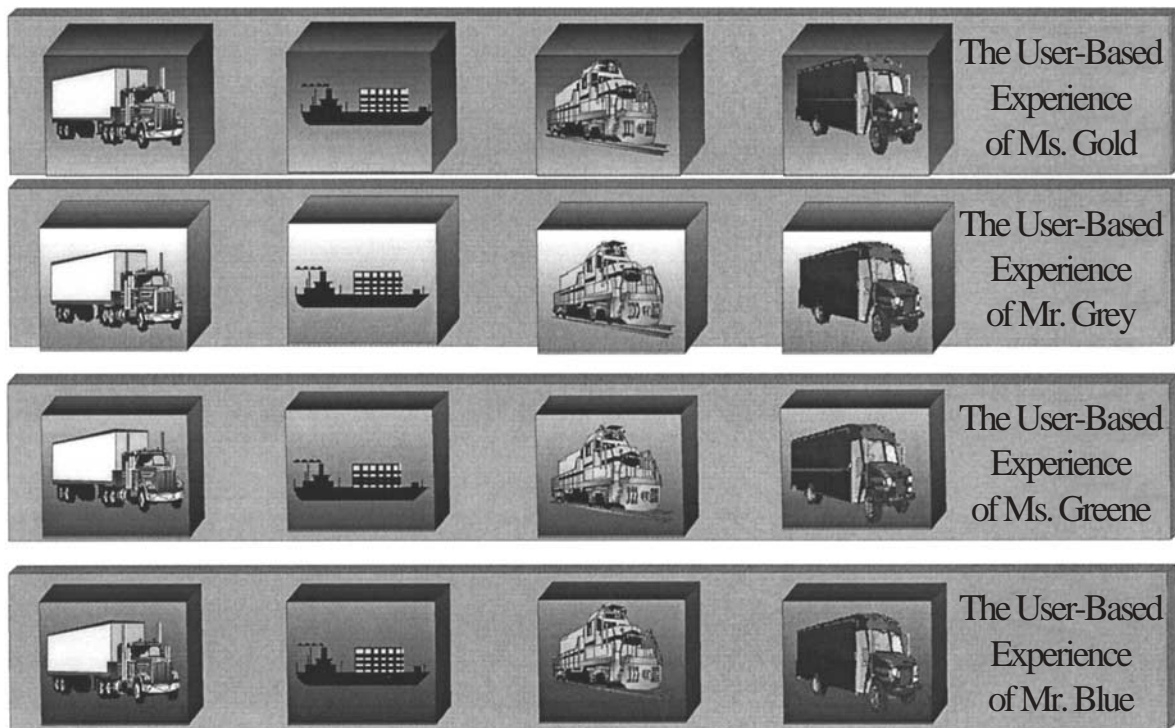


struck in organizational performance measurement between internal operating efficiency and performance in the provision of services as viewed by consumers.

The increased attention to customer-based measures of performance requires a rigorous process to

- Determine what specific characteristics of the travel experience are of greatest importance to customers,
- Collect data regularly on those factors through a combination of customer surveys and independent evaluations,
- Deploy information systems that can continuously track changes in performance at a level that allows meaningful change to occur, and
- Administer performance-based incentives and disincentives.

Figure 3.2 The Concept of Customer-Based Measures of Performance



Such approaches, based on sophisticated, state-of-the-art market research, have been commonplace in many parts of the private sector for decades. The auto industry, transit's competitor, is a prime example, where billions of dollars are spent each year on advertising that is conceived and targeted based on designers' and manufacturers' detailed knowledge of customers' reactions and responses to varying product characteristics.

While a few basic, customer-based measures of performance have been used by some transit organizations for a long time (e.g., on-time performance, cleanliness, and employee attitude), no comprehensive, systematic, or quantitatively rigorous approach has been taken to measuring the quality of the customer's experience until recently. Just as UPS evolved a system that combined efficiency measures with customer-oriented measures of service quality, transit leaders in London and Paris are on the same course. The Surface Transportation Division of Transport for London (TfL) is using internal efficiency measures based, in part, on operating data from "Countdown," a real-time, on-street service information system, combined with data from a "Mystery Shopper's Survey" program administered as a separate customer-based service evaluation sys-

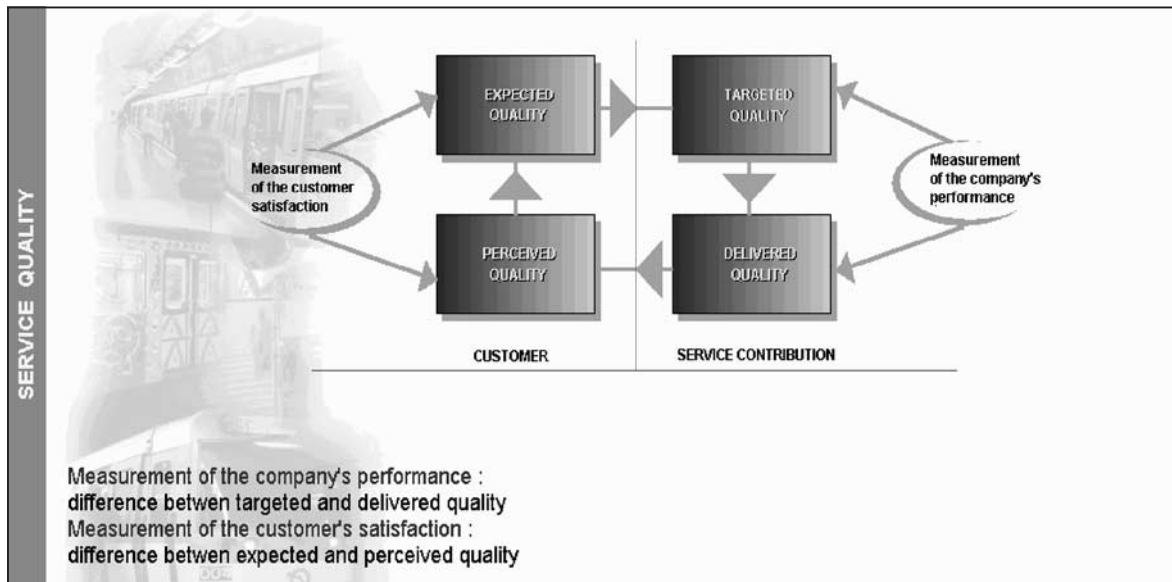
tem. The results of both are used directly to evaluate and compensate (or penalize) the contract providers of bus services in the greater London region.

In Paris, the Regie Autonome des Transports Parisiens (RATP), the regional transit operating agency, is pursuing the same combined performance-based concept as that illustrated in Figure 3.3. The diagram notes that the measurement of the company's performance is calculated as the difference between targeted and delivered quality, with the measurement of the experience of the customer defined as the difference between expected and perceived quality.

In the structure of the contract among the Syndicat des Transports d'Ile de France (STIF), the public mobility authority, and the operating agency (RATP), service is further evaluated in terms of key milestones:

- Waiting time for trains,
- Service at station premises,

Figure 3.3 Both the Efficiency of Production and the Experience of the User Are Measured



- Station cleanliness,
- Availability of ticket vending machines,
- Driver's behavior,
- Information at the bus stop, and
- Commercial speed.

It is important to note that the contract between the funding agency (STIF) and the public operating company (RATP) does not merely define the amount of service or the expected efficiency of operations. Just as managers at London Transport Bus are developing new forms of incentive-based performance measurements to improve the quality of the service provided by privately owned operating companies, the STIF contract points the way for publicly held operating companies to be held to standards of customer-oriented quality similar to those that apply to private operators. While it is perhaps too soon to assess the extent to which a large public body can be held accountable in such new ways, the concept and mechanisms for moving in that direction are being established in Europe.

In the United States, there is some noteworthy progress as well. The Dallas Area Rapid Transit (DART) system in Dallas is developing a "Customer Satisfaction Index" that gathers and combines data from three separate service quality feedback mechanisms, including a Customer Complaints (CC) system, a periodic Customer Satisfaction Survey (CSS), and a continuous Quality Assessment Data (QAD) system.

The QAD system records field observations about service quality from a customer standpoint. Observations are made by DART personnel on a daily basis and are now being entered into the system instantly through the use of wireless personal digital assistants (PDAs), allowing immediate, continuing analysis. Customer survey data are gathered through surveys conducted twice a year.

Information gathered from each source is combined to provide an index of customer-related performance across each of five areas defining "critical customer expectations." The five areas are

- Safety,
- Reliability,
- Convenience,

- Courtesy, and
- Cleanliness.

Multiple characteristics are observed or measured in each of the five areas and compared with target values for each characteristic. Summary indexes are defined by the degree of variance from target values for each characteristic. Today, target values are being set at the average of observed levels over four quarters to establish a benchmark. In time, based on benchmark data and system goals and objectives, new standards or targets will be set to gauge performance and trends.

Senior managers and the DART board are currently in active discussions over how to best use the Customer Satisfaction Index to drive management decision making as well as provide operations feedback throughout the organization. The Customer Satisfaction Index system is managed by a staff Project Manager for Quality Assurance under the direction of the Assistant Vice President for Service Planning.²⁰

■ 3.3 Collaboration

The third critical dimension of change involves moving away from the traditional independence and isolation that has characterized much of the transit industry in recent years. Collaboration rather than competition across modes, organizations, and jurisdictions has become a fundamental strategy for survival and success in the 21st century. Virtually every one of the business or industry experiences reviewed in the course of the New Paradigms project provides a useful, and sometimes dramatic, example of how the isolated and often competing interests of independent organizations can be advanced further through partnerships and sustained collaboration. The private sector was first to understand the power of collaborative arrangements, as a frequently published ad by J. D. Edwards suggests (Figure 3.4).

In realizing the power of collaboration, it is also important to realize that arrangements, once struck, may have to be altered. One of the most widely acknowledged characteristics of successful organizations in today's fast-changing world is that they are agile and adaptable. In the words of Peter F. Drucker: "business and every

²⁰ *TCRP Synthesis of Transit Practice 45: Customer-Focused Transit*, Transportation Research Board, Washington, D.C., 2002, pp. 73–76, and an interview with the DART Project Manager for Quality Assurance.

Figure 3.4 The Power of Collaborative Arrangements



Source: Advertisement by J. D. Edwards

...across organizations
...across modes
...across programs
...across resource bases

*"The defining deal
for the next decade
and beyond may
well be the alliance,
the joint venture,
the partnership."*

*Business Week
October 25, 1999*

“Organizations will be critically important in the world, but as organizers, not employers.”

*Charles Handy in
Tom Peters,
The Circle of Innovation,
1997*

other organization today has to be designed . . . to create change rather than react to it. . . .”²¹

Collaboration as a core strategy has been evident for some time in the transportation sector—in freight, in package delivery, and in the airlines. The continuing rise of contract services in public transportation, first in Europe and more widely in the United States in recent years, illustrates the shift to collaborative rather than competitive models of serving customers. The collaborative strategy also is expanding across agencies and jurisdictions in the transit arena as education and human service providers, as well as private businesses, form joint ventures in the delivery of transportation services and construction of a variety of joint development projects.

■ 3.4 Integration

The fourth critical dimension of change leading to a new paradigm involves advancing collaborative arrangements to produce more formal integration of specific systems, services, functions, and resources. What may have begun as collaborative relationships frequently is leading to arrangements in which independently owned and controlled capital assets, human resources, and financial resources are being shared or integrated to provide a more attractive product for the customer at a lower cost.

The integration of ships and terminal facilities by former competitors Maersk and SeaLand/CSX in the intermodal freight business stands out as an early example of integrating assets, as do agreements between public and private package delivery services and competing airlines.

More recent and compelling examples are emerging in the public transit industry as essential business services and functions, such as public information and fare collection, are being integrated across multiple operating agencies and multiple jurisdictions in the pursuit of “seamless” service delivery and improved efficiency on a regional scale. Examples include the multi-state agreement that led to the implementation of the EZPass program on toll facilities in the northeastern United States and the explosion in planning and implementation of integrated regional transit fare and traveler information systems underway across the United States.

²¹ Peter F. Drucker, *Management Challenges for the 21st Century*, Harper Business, New York, 1999, p. 38.

Integration of financial resources and funding is also being pursued aggressively among transportation and nontransportation agencies and organizations. These initiatives are being tracked and examined in increasing detail. The two benefits of reduced duplication of costs and expenditures and improved customer service are prompting lawmakers and public policy makers to increase flexibility to public agencies in the use of available resources.²²

■ 3.5 Information Technology

The fifth critical dimension of fundamental change leading to a new paradigm involves moving to the head of the curve with respect to the deployment of state-of-the-art information technologies. Collaboration and integration of key functions and business processes are made possible by—and are dependent on—the deployment of new information technologies, as suggested above. In the business community as well as the public sector, business-to-business systems and technologies allow extraordinary sophistication in maintaining continuous, real-time contact between businesses and industries committed to join forces in providing better products, services, and customer satisfaction and loyalty.

Similarly, rapidly advancing customer relations systems and technologies allow businesses and industries to maintain continuous, real-time contact with individual consumers, both personalizing transactions and accelerating the speed with which transactions can be carried out to near instantaneous levels in many instances.

Information technologies such as common scheduling and dispatching systems; real-time, regional, web-based service and operations information for on-street users; and regionwide uniform electronic fare systems are, in large part, the “enabling” mechanisms that allow public transportation agencies to embrace and pursue a new paradigm. Today’s information technologies allow us to

- Execute the mission shift spoken of earlier,
- Put into operation more sophisticated and accurate measures of service quality and efficiency,

²² Community Transportation Association of America, “Medicaid Transportation: Assuring Access to Health Care—A Primer for States, Health Plans, Providers, and Advocates,” Washington, D.C., 2001.

- Connect continuously in real time to partners in service design and delivery, and
- Understand and track customer needs and levels of satisfaction with services offered.

The new—and constantly changing—information technologies are also forcing fundamental changes in the structure of organizations. We can now define, separate, and focus resources more effectively on the strategic interests that must be served and differentiate them from the operational requirements that must be met. We can better define, evaluate, and align both (1) the organizational capacity and systems needed to execute strategic responsibilities and (2) the organizational capacity and systems necessary to reinforce accountability in the provision of services.

■ 3.6 Organizational Structure Change

The sixth critical dimension of fundamental change involves the inevitable changes that will need to occur in organizational structure and capacity as a result of embracing a new mission, heightened customer focus, new partnerships, and the requirements of new technologies. Invariably, new business units will need to be formed, traditional functions redesigned or relocated, new professional skills and competencies recruited, and traditional business processes reengineered.

At the core of organizational change associated with the emergence of a new paradigm for transit organizations is the distinction between (1) what is to be viewed as the organization's long-term strategic interest and mission and (2) the responsibilities that must be carried out to ensure that operations are managed effectively on a day-to-day basis. As the three-tiered model in Figure 2.2 indicated, the paradigm shift taking place throughout the transportation sector, as well as in other businesses and industries, elevates to primary strategic importance the quality of the customer's experience. At the same time, the dozens of activities involved in service design and delivery—who provides the capacity using what assets—have been subordinated in a sense (i.e., the quality of the experience is of greater importance to the customer than whose equipment is being used to provide the service).

This new paradigm, in effect, reverses the historic focus of transit organizations in which operational concerns have been viewed as of paramount strategic importance and customer concerns largely subordinated. The implications for change in organization structure

are profound, leading to a fundamental test of how well an organization is suited to carry out a customer-focused mobility management mission. The test might be framed by these questions:

- Which traditional or new functions are central to manage mobility on behalf of the customer? Which are not?
- With a new mission, which functions are of “strategic” importance? Which are not?

To answer these questions, a detailed review is necessary of the full array of activities and functions typically undertaken by the traditional public transportation agency. Such a review and organizational restructuring has been underway at several major transit agencies in recent months. Table 3.2 highlights the initial functions that are being reviewed as part of the consolidation of the San Diego MTDB and the NCTD with the regional MPO, SANDAG.

The object of the consolidation is to streamline and quicken the pace of transportation planning and investment in a more coordinated, multimodal, and collaborative way. The decisions that are pending involve distinguishing between which functions should be moved to the “consolidated agency” as a matter of regional strategic importance and which should reside in the surviving transit operating agencies—the NCTD, the San Diego Transit Corporation (SDTC), and the San Diego Trolley Corporation, Inc. (SDTI).

This same “test” or set of considerations is being faced by the UTA in Salt Lake City. In Salt Lake City, separate modal and geographic operating units are being created to enhance the responsiveness of services and operations to customers and increase efficiencies. Managers of the new operating units will have significant authority and autonomy, while a series of strategic and corporate support functions will be retained in a much smaller UTA “corporate” business unit to ensure that issues of regional strategic importance are managed from a regionwide perspective.

As suggested in these and other examples throughout the report, emerging experience has shown the following:

- Direct operation of services—ownership of assets and employment of operating staff—is not an essential prerequisite for ensuring that the mobility needs of citizenry are being met.
- Much more than the operation of traditional transit services is required to manage mobility with a customer focus.

Table 3.2 Selected Functions and Activities

Function/Activity	Transfer All	Transfer Partial	No Transfer
Customer Relations and Marketing			
Market Research			
Marketing			
Advertising			
Business Development			
Outreach and Public Information			
Graphics and Production			
Planning and Development			
Short-Range Transit Plan			
Corridor Studies			
Special Analyses			
Land Use Coordination			
System Integration			
Fare Technology Project(s)			
Operations Management Center			
Public Information Systems			
Finance and Administration			
Budget Development			
Grant Management			
Pass Sales/Cash Handling			
Procurement			
Legal and Compliance			
Counsel			
Legislative Support			
Risk Management and Insurance			
Contract Compliance			
Internal Audit			
Security			
Human Resources			
Hiring			
Evaluation			
Training/Professional Development			
Grievance			
Multimodal Operations			
Services Contract Management			
Taxicab Regulation			
Operations Coordination and Policies			
Bus Stops, Shelters, Facilities			
Information Technology			
Software Management			
Fiber Optics			
Radio Communications Systems			
Fare and Customer Information Technologies			
Engineering and Construction			
Engineering			
Construction			
Construction Oversight/Management			
Real Estate/Property Management			
Other Non-Operating Functions			

In only the last 2 years, policy makers inside and outside the transit industry have begun to act instinctively to reshape their public transportation organizations to reflect these basic tenets. What may appear as isolated actions on the part of industry leaders—like those in San Diego and Salt Lake City—to fundamentally restructure their organizations represents, in fact, a frontier that an increasing number of transit agencies are approaching with the same general model in mind—a new paradigm that elevates customer-driven mobility management to the level of strategic importance, retains and strengthens functions that support the mobility management mission, and delegates remaining functions to partners with clear expectations for more accountability to customers.

The San Diego and Salt Lake experiences mentioned above, along with a number of other regions pursuing fundamental organizational change, are discussed in greater detail in Section 4.0.

■ 3.7 Gauging Progress Toward a New Paradigm

Today, virtually every transit agency in the country is likely to be moving away from the long-standing status quo in at least one of the critical dimensions of paradigm shift outlined above. However, managers of these agencies may lack (1) the knowledge that other agencies are also pursuing fundamental changes in these directions and (2) a sense that what lies at the end of this progression may be truly a new paradigm in more effectively managing mobility on behalf of transit customers.

Agencies can and should begin to measure their progress toward a new paradigm and compare their experiences. Figure 3.5 describes and illustrates one approach to monitoring change.

Charting the progress toward a new paradigm requires only that observers describe the type of thinking and action that is underway with respect to the six critical dimensions of change described earlier. Four basic stages in an implementation cycle are noted in Figure 3.5 to frame the assessment:

- **Conceptualizing.** Though no overt or formal action may have been taken, agencies and organizations may have begun, at various levels, to consider changes that might be made in any of the six dimensions, the required actions, and their pros and cons.
- **Planning.** Policy makers and/or staff may have launched formal activities designed to comprehensively explore the

Figure 3.6 Steps for Progressing Toward a New Paradigm

<p>Step 1: Assess Your Environment</p> <ul style="list-style-type: none">• <i>Conducting a careful examination, with participation by a wide range of stakeholders, of how each of these broad challenges are playing out in your particular region and</i>• <i>Making an effort to distill the implications for future mobility in the region, for institutional arrangements, and for long-standing business practices.</i>
<p>Step 2: Explore the Application of Emerging Principles and Themes in the Local Setting</p> <ul style="list-style-type: none">• <i>Developing a deeper, common understanding of emerging principles and themes among key stakeholders;</i>• <i>Determining where progress may be possible, determining where obvious advantage may lie in initially pursuing change, and identifying what obstacles may exist to acting on these principles and themes;</i>• <i>Inventorying the key linkages that might be reinforced between existing organizations and agencies to foster a new paradigm in local public transportation (i.e., common goals and objectives, overlapping leadership and governance, key system and service interrelationships, etc.); and</i>• <i>Identifying key community leaders and officials with whom to build an agenda for fundamental change.</i>
<p>Step 3: Measure Progress in Six Dimensions</p> <ul style="list-style-type: none">• <i>Establishing a baseline and regularly measuring progress toward it by assessing what stage you may be in relative to each of the six dimensions of change. For each of the six dimensions, an agency may be</i><ul style="list-style-type: none">➢ <i>Conceptualizing or contemplating fundamental change,</i>➢ <i>Formally planning fundamental change,</i>➢ <i>Implementing or deploying fundamental changes on a comprehensive or staged basis, or</i>➢ <i>Operating under a new paradigm.</i> <p><i>Figure 3.5 illustrates the process of tracking fundamental change at the local level.</i></p>
<p>Step 4: Report Progress Toward a New Paradigm on a National Scale</p> <ul style="list-style-type: none">• <i>Seeing and sharing these experiences over time. The payoff for regularly tracking and reporting a paradigm shift at the industrywide level will come in two forms:</i><ul style="list-style-type: none">➢ <i>Insights that will help focus and guide the subsequent actions of individual agencies and</i>➢ <i>Portrayal of an entire industry on the move toward a newer, more effective and responsive way of doing business.</i>

4.0 Charting the Change Across the United States

The previous section laid out the rudiments of a framework for **HOW** a new paradigm in public transportation might evolve or be pursued. This same framework can also be adapted for use in monitoring, measuring, and reporting progress toward a new paradigm.

Throughout the project, the research team has observed that a growing number of public transportation organizations in the United States are, indeed, engaged in fundamental change across some or all of the dimensions that mark the way toward a new organizational paradigm. Previous sections have provided partial glimpses of these paradigm shifts in progress. The material that follows provides (1) a broad summary of the thoughts of select industry leaders who participated in one of the four focus group discussions held throughout 2002 on the topic of new paradigms and (2) a more comprehensive look into the motives, intentions, actions, and progress that is being made in a handful of agencies across the country.

■ 4.1 Premises and Principles of a Paradigm Shift: Observations from Transit Industry Leaders

Throughout 2002, small groups of transit industry leaders were engaged by invitation to participate in a discussion of the basic premises and principles that lie at the core of a paradigm shift in public transportation organizations in the new millennium.²³ At

²³ Invitees were selected to represent the following: systems actively pursuing fundamental change, systems of varying size, individuals whose progressive leadership is well known throughout the transit industry, and transit industry media and researchers. In the case of the Florida Public Transportation Association (FPTA) focus group, participants were random volunteers from among conference attendees.

each of the venues listed below, 10 to 20 industry leaders joined in discussions that lasted 1½ to 3 hours:

- 2002 APTA General Managers Seminar, San Diego, California, February 2;
- 2002 APTA Bus Conference, Minneapolis, Minnesota, May 5;
- 2002 Community Transportation Association of America Annual Meeting, Austin, Texas, May 19; and
- 2002 Florida Public Transportation Association Annual Meeting, Tampa, Florida, October 22.

The discussions at each of the focus group sessions involved consideration—and debate, if appropriate—of the basic premise of the New Paradigms project as well as participant observations on what were then referred to as “themes and principles” of paradigm shift, now referred to in this report as “the six dimensions of change.” Table 4.1 summarizes how the topics were structured for discussion at the focus group sessions.

Key Points from Focus Group Discussions

There was extraordinary unanimity among focus group participants in support of the basic new paradigm premise (i.e., that fundamental change in the industry is essential). Participants were similarly supportive of the emergence of the “mobility management” mission as the focus of change. Counterbalancing this vision and receptivity to a new paradigm, however, is a deep-rooted frustration over the constraints on creativity, risk taking, and change that are inherent in the current structure and practices of the industry. The observations below capture the most salient and telling comments made through the series of focus group sessions.

The Premise—Fundamental Change is Necessary and Inevitable

- If we don’t change, we don’t survive.
- Change is imperative if we are to remain relevant in the future.
- The risk is in not changing.
- Profound change is already at hand.

Table 4.1 Focus Group Topics

Topic	Discussion Questions
Basic Premise	Fundamental change in public transportation organizations is inevitable over the next 5 to 10 years
Mission Shift	<p>A shift toward a responsibility for overall mobility...</p> <ul style="list-style-type: none"> • <i>Who is responsible now?</i> • <i>Can transit agencies make the change?</i> • <i>Do you embrace this shift?</i> • <i>Is your organization moving this way? What steps?</i> • <i>Are other organizations in your area moving to fill this void?</i> • <i>What are the chief barriers, or arguments against?</i>
Customer Orientation	<p>There is a shift toward an “obsession” for the customer...</p> <ul style="list-style-type: none"> • <i>Do you endorse this principle/theme?</i> • <i>Is your agency moving in this direction? What steps?</i> • <i>Have you defined factors that make up a customer’s sense of the “quality of the travel experience”?</i> • <i>Do you monitor those factors as part of a formal performance monitoring process?</i> • <i>Do you reward improvement in the quality of the customer’s travel experience?</i> • <i>What constrains you from creating an “obsession” for the customer?</i>
Collaboration and Integration	<p>Growth and expansion will increasingly be based on alliances, partnerships, joint ventures...</p> <ul style="list-style-type: none"> • <i>Do you subscribe to this principle/theme?</i> • <i>Is your organization expanding its partners?</i> • <i>Who are your partners?</i> • <i>What services or functions are being performed collaboratively?</i> • <i>What are the greatest barriers to collaboration and integration?</i>
Information Technology	<p>Relationships with customers and partners are increasingly dependent on state-of-the-art information technologies...</p> <ul style="list-style-type: none"> • <i>Is “infrastructure” a central part of your plans? What types?</i> • <i>In what stage of planning and deployment are you?</i> • <i>Where do you want to be in 2 years? Five years?</i> • <i>What are the barriers?</i>
Organizational Structure	<p>Significant change is implied in shifting from “capacity provider” to “mobility manager...”</p> <ul style="list-style-type: none"> • <i>Are changes in organizational structure in your future? Which changes?</i> • <i>What steps will you follow?</i> • <i>Who leads and drives organizational change?</i> • <i>What are the barriers?</i>

- If we don't make the change, someone else will plan our business.
- The cycles of change are driven by politics and economics on different timeframes with varying degrees of urgency.
- Many agencies have little or no authority to respond creatively or foster fundamental change.

Characteristics and Focus of Change—General

- Transportation, mobility, and access are moving up the public agenda.
- The current transit product is indistinguishable from 40 years ago.
- The greatest progress in managing mobility is being made in the paratransit arena.
- Product diversification is essential.
- The largest required change is in management thinking, skills, and styles.
- In a risk-averse environment, don't say "no" to any opportunity to be useful; engage.
- Focus on the full trip.

Principle 1—Mission Shift

- "Mobility management" is the mission; "mobility enterprise" is the characterization.
- "Seamlessness" in the travel experience is the goal.
- The community is "racing to mobility management."
- We must stress the importance of mobility to community building; i.e., the mission goes beyond mobility management.
- Other organizations are willing and able to assume the "mobility management" mission, including local governments and MPOs; the taxi industry is moving aggressively to embrace this function.

Principle 2—“Obsession” for the Customer

- Customers must become the preeminent focus of the organization.
- We need to move people as efficiently as we do packages.
- We must invite users directly into the system.
- We must know the markets in terms of individual customers’ needs and experiences.

Principles 3 and 4—Collaboration and Integration

- A revolution is taking place in the levels of collaboration and partnerships being attempted.
- Collaboration and integration are essential in several dimensions: fares systems, customer information, operations, facility access, etc.
- There are increasing connections and interactions between the modes.
- We must extend collaboration opportunity to customers.
- There are many partners to consider:
 - Look to partnerships on the supply side.
 - Assess ties to other public service markets, programs, and providers.
- Not all collaborations work or last forever; be prepared to adjust and adapt.

Principle 5—Information Technology

- Customers have come to want and expect state-of-the-art technology.
- Information technologies must be a priority.
- Information systems and technology, including the Internet, are critical.

- Technology is the means to customer “ownership” of the system or service.
- Quality is necessary in service delivery; data and measurement systems need vast improvement.
- Managing technology and technology professionals requires a new set of skills and a higher place in organizations.

Principle 6—Organizational Structure Change

- We must remedy the fact that no reward exists for risk taking.
- We must expand the role and stature of strategic thinking and market research.
- Product diversification is needed.
- Accountability should focus on customer-related issues.
- Greater freedom to respond to varying customer needs and desires is needed.

Some Issues in Managing Change

- Who “forces” change?
- The pace of change a key issue; is there an event to “push” or trigger change?
- Consciousness raising is needed at all levels—policy, management, staff, and customers.
- Paradigm shift through incremental changes is a legitimate avenue; crisis is not a necessary precondition.
- The risks of significant shifts are highest for managers.
- We must cultivate an image of “usefulness” in the community as a basis for fundamental change.
- We must stress the importance of mobility to the future of “community building.”
- Quality of life is threatened by bad transportation.
- We must reconstruct a “balance sheet” to spell out transit’s broad community benefits.

■ 4.2 In Pursuit of Paradigm Shift: Charting the Change in Transit Organizations

Throughout the New Paradigms project, the research team has examined changes in organizational structure and business practices in both the public and private sectors. Examples were drawn from the transportation sector and from a host of other businesses and industries that included both manufacturing and services. Within the transportation sector, the most pronounced and significant changes have been noted in intermodal freight, package delivery, and airlines industries, as well as in passenger transportation outside the United States.

These early examples of fundamental change in the structure of transportation organizations had in common the major elements of the three-tiered model described earlier in Figure 2.2:

- The organization had as its primary strategic mission enhanced mobility and a high-quality customer experience, an organization that could project itself to the community at large as an effective organizer and quality control agent in support of individuals' travel through a region, regardless of whose facilities or equipment might be used.
- The organization deployed state-of-the-art information technologies to manage service quality in real time through a variety of partnering organizations and to engage and inform the customers and ease the use of public transit services for all.
- The organization offered, integrated, and managed a variety of services through a variety of partnering arrangements rather than acting as the sole provider of service.

The model of an "oversight" or "umbrella" organization that coordinates and oversees the provision of transit services offered by others is not new to the U.S. transit industry. In both New York and Chicago, regional umbrella agencies exercise a range of strategic, coordinating, and management functions that guide investment in and delivery of traditional transit services in a multi-jurisdictional setting. These long-standing roles and responsibilities reflect, in a limited way, arrangements suggested in the three-tiered model of a new paradigm.

The difference between (1) the established institutional structures and arrangements in New York and Chicago and (2) the structures and arrangements that describe a truly "new paradigm" lie in the

pure public nature and the relative independence of both the oversight and operating agencies in both New York and Chicago.

In contrast, the currently emerging three-tiered new paradigm model diminishes reliance on public agencies as the sole owners of equipment and employers of operating personnel at the same time it heightens and sharpens the strategic responsibility of the public agency for service integration, resource allocation, and overall performance of the system and respective service providers. The two roles and responsibilities—strategic and operational—are separated. Strategic direction remains a public-sector responsibility while operational responsibility can be exercised through a variety of partnerships involving both public and private partners.

Rapidly Changing Industry Perspectives

Initially, when the new paradigm themes, principles, and dimensions were brought before leaders of the U.S. transit industry, these themes were met with a high degree of skepticism. Even as recently as 1998, many transit professionals were unsympathetic to the notion that significant change might be needed. In the short period since that time, however, the initial skepticism over the need or inevitability of fundamental change has been replaced by a growing acknowledgment of the need for—and actual pursuit of—change in these key dimensions, as evidenced by the responses of focus group participants highlighted above. Simultaneously, a few well-publicized early initiatives were launched to make fundamental changes in organizational structures, missions, and the basic business practices of public transportation organizations in at least two major metropolitan areas: Vancouver, British Columbia; and Atlanta, Georgia. While the process of change in these two areas is still underway, each area illustrates the validity of the themes and principles that have emerged from the New Paradigms project.

Formation of the Greater Vancouver Transportation Authority (GVTA). The GVTA, or TransLink, was created in October 1998 to serve as the coordinator of a formally defined Regional Transportation Network.²⁴ TransLink is charged with responsibility to plan, finance, operate, and manage transportation in close coordination with the region's growth and economic development plans.

²⁴ A more complete description of the formation and responsibilities of the Greater Vancouver Transportation Authority/TransLink can be found in *Organizing for Regional Transportation Operations: Vancouver TransLink*, prepared for the Federal Highway Administration by Booz Allen Hamilton, August 2001.

TransLink carries out its regional strategic role by coordinating planning and service standards, setting multimodal budget priorities, and financing projects through a combination of regional funding sources.

Through a series of operating subsidiaries, governmental and private partners, and contractors, TransLink is responsible for

- Public transit operated by four wholly owned subsidiary organizations and a number of private contractors;
- Roads and bridges on a 2,100-mile Major Road Network (MRN) in partnership with municipalities;
- Air quality management and emission standards in cooperation with the Greater Vancouver Regional District (GVRD), the regional planning agency;
- Transportation demand management through alternative programs and partnerships with private business and industry; and
- Intelligent transportation systems (ITS) planning and deployment through a subsidiary corporation.

The overall structure of the new TransLink organization, its multimodal mission, the arrangements through which it carries out its mission, and the separation of regional strategic responsibility from modal and geographic operating responsibility reflect the themes and principles of the emerging new paradigm.

Formation of the Georgia Regional Transportation Authority. The Georgia Regional Transportation Authority (GRTA) was formed in April 1999 in response to air quality and transportation planning shortcomings in the Atlanta region. GRTA's authority is statewide but is directly applied to counties that fall into federal nonattainment status for air quality. GRTA's authority lies in four specific areas:

- The authority to implement public transportation services and capital improvements within the region,
- The authority to withhold state grants from local jurisdictions whose plans fail to comply with regional goals and plans,
- Approval authority over transportation improvement programs and regional plans, and
- The authority to enjoin state and federal transportation funding for developments of regional impact (DRIs).

In concept, the institutional changes brought about through the creation of GRTA have much in common with the changes enacted in the Vancouver metropolitan region. First and foremost among these common changes is the strengthening of the regional strategic planning and transportation management function as separate from the operation of individual systems and services. Other parallels include the closer link created between transportation investment decision making and regional land use and development plans.

Among the most important differences between these two early examples of fundamental restructuring of transportation organizations and business practices are differences in governance and financing:

- TransLink in Vancouver is governed by a 15-member board, 12 members of which are local elected officials appointed by the regional planning agency (GVRD). Each operating subsidiary has a board appointed by the GVTA board. GRTA, in Atlanta, is governed by a 15-member board appointed by the governor of Georgia.
- TransLink draws exclusively on regional funding sources, including fuel taxes, residential and commercial property taxes, residential electric utility fees, sales taxes applied to parking, and fees from emission testing. GRTA, in Atlanta, has substantial bonding authority, which is currently under court challenge, but no independent regional revenue source. GRTA also negotiates fee-for-service funding agreements with local jurisdictions desiring service.

From Independent, Isolated Change Initiatives to Industry Pursuit of a New Frontier

While the motives for organizational change in these two early examples were dramatically different, in each instance fundamental changes were pursued across each of the six dimensions noted in the New Paradigms work.

During the same period, a number of other agencies and organizations began considering and pursuing equally dramatic changes in various dimensions of paradigm shift. Common to these activities was an apparent desire and intention to break away from some aspect of long-standing, traditional industry institutional arrangements or business practices.

In the early stages of the New Paradigms project, as actions leading to fundamental change began to be noticed, all that was evident to the casual observer was a seemingly random set of independent,

isolated, and unique changes among often dissimilar agencies responding to presumably unique local circumstances. In hindsight, however, evidence was beginning to accumulate that a broader movement was underway toward a different way of doing business and that actions being taken held the promise of increasing the relevance of public transportation in an increasingly challenging environment.

Looking across the U.S. transit industry today, it is clear that large segments of the industry are moving simultaneously toward a new frontier in organizational structure, management, and institutional arrangements. The transit industry has moved to a very different place from where it was philosophically and structurally only 2 to 3 years ago. In that span of time, there has been a dramatic increase in the pursuit of fundamental change along the dimensions laid out in the New Paradigms project. Significant organizational changes are now underway in places and within organizations where they would have been least expected only 2 to 3 years ago.

While the transformations taking place remain works in progress, fundamental organizational change is no longer episodic or isolated in a few areas. The examples highlighted below document the increasing breadth and pace of fundamental change in the U.S. transit industry and, in the process, the emergence of a new paradigm in public transportation organizations.

■ 4.3 Cases of Paradigm Shift Underway in Public Transportation Organizations

Update on Transit Organizations in Europe

Fundamental changes in the organization of public transportation in Europe were documented in previous project research and reports and have played an important role in building the new paradigm framework outlined earlier. Most of these approaches, however, reflect progress made through the vision, creativity, and commitment of individual localities to find new and better ways to organize and deliver public transportation that is more attractive and more effective in serving regional goals.

More recently, however, the European Union (EU) has raised issues about the provision of public services to a new level of importance as individual countries attempt to more closely integrate economic and environmental policy while retaining important aspects of their unique cultures. Appendix A highlights how this process and

resulting issues have influenced the organization and provision of public transportation in the new EU era, based on a rolling series of interviews and exchanges between research team members and senior transit and transportation officials across Europe.

While the TCRP New Paradigms project was exploring the fundamental reorganization of public transportation in the abstract, transportation policy leaders in Europe were exploring exactly the same set of issues, including organizational change, mission shift, customer focus, collaboration, integration, and the use of information technologies. As part of this examination, EU leaders determined that there should be a direct means to challenge the “exclusive rights” of public monopolies to act as the sole transit service provider. The involvement of senior transportation officials from both London and Paris in this ongoing debate provides a view into how the principles of a new paradigm in public transportation might be pursued and embraced on a continental scale. At this time, the framework for the provision of transit services in Europe’s major metropolitan areas is emerging from the following principles, guidelines, and actions:

- **Organization Structure: Promote a variety of arrangements for providing service while presenting a unified package of services to the customer.** The initial EU proposal was for wholesale privatization of all public transport. In response, 10 of Europe’s largest public transportation agencies joined together to propose an alternative policy that was based on a case for the continued presence of existing public transit authorities while acknowledging the need for fundamental organizational change. An initial point of agreement arose on the notion that the agency that defines the mobility strategy and provides the funding should be separated from the entities that operate the service and that the latter, whether public or private, can be equally accountable for service quality through formal agreements and monitoring.
- **Mission: Provide mobility strategies through service by multiple partners and modes.** The creation of overarching multimodal agencies in both Paris (STIF) and London (TfL), as well as in other European urban areas, is a direct acknowledgement of the shift in roles from service provider to mobility manager by the public agency.
- **Customer Focus: Have breakthroughs in the measurement of the quality of the customer’s experience.** Both RATP in Paris and TfL in London have under development systems of incentive-based performance measurement that address both measures of operating efficiency

and measures of the quality of the customers' experience that can be applied to the service provider, whether public or private.

- **Collaboration, Integration, and Information Technology: Build on tradition.** The emerging vision of mobility management based on the needs of the user and not the needs of a service supplier is leading to a new generation of collaborative arrangements—and regulation—that are built on a significant tradition of cooperation that will potentially encourage and reward increased integration of service.

Emerging Experiences in U.S. Transit

These same principles are now being echoed in the actions of transit agencies across the country. There is increasing evidence of fundamental change in each of the six dimensions that are precursors to a paradigm shift in local public transportation organizations. Through the final phase of the New Paradigms project, the research team has tracked and helped support the efforts of many of these agencies. Presented below are a series of summary observations that reinforce the notion that the industry as a whole is, in fact, moving broadly toward a new paradigm in the effort to enhance mobility as well as improve the design and delivery of public transportation services.

The first set of observations is a group of short vignettes from a small sample of agencies and organizations. The vignettes illustrate that attention to the six dimensions of change can be found in a wide variety of systems and circumstances and is not focused entirely in our major metropolitan areas. The second set of observations provides somewhat more detail for selected agencies in a case study format.

*Vignettes in the Pursuit of a New Paradigm*²⁵

The **Transit Authority of River City (TARC) in Louisville, Kentucky**, has held two retreats for board members and senior staff focused on new paradigm themes and their implications. An issue paper has been drafted on future organizational principles for delivery of transit services in the region and the role of mobility

²⁵ Material for the vignettes that follow was assembled from web sites, agency documents, and, in each case, personal interviews with senior agency managers.

management in serving regional travel needs. The issues growing out of the new paradigms effort have risen in importance in Louisville as the January 2003 consolidation of Jefferson County government and the City of Louisville is implemented. The new “regional city” will become the 16th largest city in America, creating a heightened focus on managing transportation investment and development on a regional scale. The merger of city and county units of government is still underway, and the ultimate role of independent organizations like TARC remains somewhat undefined. The new political structure, however, already provides for a degree of separation between strategic policy and oversight and operational functions. The new structure also provides for a clearer focus on regional service needs beyond the city-county boundary and for greater integration of regional policy making across jurisdictions.

The newly elected metro mayor was responsible in an earlier term as the mayor of Louisville for introducing into city government action-oriented, cross-departmental business and problem-solving processes that were a model of integrated, customer-driven public service delivery at the time. The metro mayor’s prior experiences suggest that receptivity to the themes and principles growing out of the new paradigm work should be high under the new, consolidated governance arrangement. Four deputy mayors will serve the newly elected metro mayor. Each will have responsibility for specific functional areas of governance and service, including one deputy with a cabinet secretary specifically responsible for public transportation and community development. The integration of the transportation and community development functions is one of the greater opportunities and prerequisites for effective mobility management, as has been pointed out earlier, and has the potential to bring transit and development policy into sync in a more effective way than has been the case in the past.

The Ann Arbor Transportation Authority (AATA) in Ann Arbor, Michigan, has long been an industry leader in testing and deploying state-of-the-art information technologies that are an essential element in the pursuit of fundamental organizational change. The same vision and leadership that has sustained the exploration of new information technologies recently led to the development of a new strategic plan that has shifted the AATA mission to a commitment to “contribute to the management of mobility” in the region. Recognizing the fast-changing realities of travel demand in the Ann Arbor region and the higher-order mission to broadly manage mobility, AATA has continued to embrace fundamental change in most of the key dimensions associated with a shift in the traditional transit paradigm. AATA continues to test and deploy state-of-the-art information technologies, including, most recently, an Interactive Voice Response (IVR) system to provide information to customers more effectively and efficiently.

The scope of AATA's responsibility is also being expanded both geographically and in a multimodal sense. The agency has assumed responsibility for a commuter rail planning initiative and at the same time is expanding its service planning and delivery role regionwide. Expectations that the AATA can continue to be successful in broadening its mission and approach have been borne out, in part, by AATA's success in partnering to provide a county-wide brokerage function and its ability to serve as a fleet management resource to providers across the region. Collaborative partnerships are also in place that will lead to service integration with a comparably sized system operated by the University of Michigan. There are also provisions of custom services for major regional employers and joint development of a new, mixed-use downtown transfer center in collaboration with the city and the Downtown Development Authority.

Metro Transit in Minneapolis and St. Paul, Minnesota, was reorganized as an operating subsidiary of the Metropolitan Council, the region's MPO, in 1994, providing an early example of the separation of (1) regional strategic planning, management, and programming responsibilities exercised by the council and (2) the daily transit operating responsibility carried out by Metro Transit and five independent operating agencies in suburban communities. The structure in place today has much in common with the three-tiered model described earlier, and transit decision making is enhanced through the Metropolitan Council's long-standing role in framing regional growth and development policies. As the multimodal nature of Twin Cities transit has expanded with construction of light rail, institutional collaboration and system integration has continued to increase among the council, transit operating agencies, county-level rail authorities, the Minnesota Department of Transportation (MnDOT), the local business community, and the University of Minnesota.

At the regional, strategic level, the Metropolitan Council allocates available transit funds to Metro Transit and to the community operating agencies and monitors service quality through a regional framework of service standards that features distinctions in geographic areas, service types, and service characteristics. New technology is being planned and deployed to support both the strategic and operational missions of collaborating agencies and organizations. Although regional fare integration among multiple providers is in place to a limited degree, a regional smartcard system is planned for initial deployment in 2003 and is defined as a regional responsibility and function. Operations and performance data will be reported centrally through a local area network (LAN) based in five Metro Transit garages and 11 other facilities. A transit information center already integrates customer information for Metro Transit, the community systems, and contract service providers on

a graphic information systems (GIS) platform, and automatic vehicle location (AVL) is being added to the entire transit vehicle fleet, also as a regional initiative.

In the Twin Cities, the broader mission of managing mobility through a seamless regional system of transit services has evolved as a focus of responsibility for the region's MPO while traditional transit operating agencies and other providers concentrate on providing capacity to meet travel needs and serve long-term regional goals.

The Washington Metropolitan Area Transit Authority (WMATA) in Washington, D.C., has in many ways emerged as a leader in pursuit of a new paradigm in transit service design and delivery. WMATA is leading the effort to define the larger role that transit must play in the region and the broader mission that WMATA itself must play in ensuring mobility and access. A recently completed strategic plan is based on these imperatives and lays out goals and strategies to better balance WMATA's responsibilities as a traditional operating agency with WMATA's ability as the only regional-scale operating agency to serve as an integrator on several levels.

Part of this transformation has been an ongoing culture change initiative designed to engage the full WMATA staff in considering what the organization may become and how organizational structure, business processes, and communications might be altered in the future. WMATA was one of the first agencies to sponsor in-depth discussions of the new paradigm themes and principles in sessions with its top 60 senior managers and in its quarterly senior management meetings involving 250 senior managers. The new strategic plan advances many of these themes.

WMATA also has enacted significant changes that echo and reinforce new paradigm themes:

- A new position has been created at the Assistant General Manager level for long-term and strategic planning to heighten corporate focus on key new paradigm themes, including market research and customer knowledge; service integration at the regional level; and collaboration with a host of other organizations in the region also committed to economic growth, enhanced mobility, and improved quality of life.
- The SmarTrip smartcard system in use on Metrorail was one of the first large-scale deployments of smartcard technology in the country. The plan is for the system to be expanded to the Metrobus network as well as to other rail and bus operators in the region. Testing of the SmarTrip card on bus fareboxes is currently underway.

- A real-time train arrival signing system has been installed on Metrorail and provides customers with constant real-time reporting of next train arrivals as well as other important public service messages about system operations.
- An effective web-based trip planning system is in place that integrates schedule and route information from providers throughout the region.

In a complex, politically challenging, multijurisdictional urban setting, WMATA is making advances and pursuing fundamental changes that, taken together, places it at the new paradigm frontier.

New York Metropolitan Transportation Authority (NY MTA) has recently proposed a fundamental reorganization that reflects, in key ways, progress toward a new paradigm in the nation's largest transit network and most transit-intensive metropolitan area. Institutional arrangements and the transit organizational structure already in place in New York reflect, to a degree, the three-tiered new paradigm model, with policy, programming, and oversight responsibility exercised by the NY MTA and operations conducted by the various NY MTA subsidiaries. Under this scheme, however, various subsidiaries had common missions, performed similar activities, and/or maintained parallel staff capabilities (i.e., were organized largely to supply capacity in their respective service areas).

The reorganization, announced in October 2002, will take place over a 2-year period and involves a realignment that will result in the formation of five distinct companies, each having a single transportation mission:

- MTA Rail (formerly the Long Island Rail Road [LIRR] and Metro-North Railroad);
- MTA Subway (including the New York City Transit Authority [NYCTA] subways and Staten Island Railway);
- MTA Bus (formerly NYCTA buses, the Manhattan and Bronx Surface Transit Operating Authority [MaBSTOA], and Long Island Bus);
- MTA Bridges and Tunnels; and
- MTA Capital, a unit in charge of overseeing system expansion projects for all companies.

The merger of the commuter railroads is intended to reduce redundancy in administrative functions; increase efficiency in inventory,

equipment maintenance, and customer relations functions; and allow a more regional strategic approach to be taken toward commuter rail service.

The merger of bus operating entities will provide a single focus on regional strategies to uniformly enhance the quality of the customer experience on the bus network. It also will provide in the future an organizational unit through which better integration with other regional bus operators can be pursued.

The creation of a separate entity to manage major system expansion projects such as East Side Access for LIRR and the Second Avenue Subway for NYCTA provides an important distinction between the mission of preservation and maintenance, which must necessarily be undertaken constantly on a day-to-day basis focusing on existing and widely varied capital equipment and physical plant, and the mission of expanding the reach and capacity of the network on a regional scale.

In addition to the organizational restructuring, the NY MTA has moved aggressively to harness new information technologies to enhance the customers' experience and ease of access to the system. Introduction of the MetroCard on the NYCTA subway system and buses, as well as on Long Island Buses and New York City private buses, and the EZPass on NY MTA bridges and tunnels as part of a multistate regional initiative, has already profoundly influenced travel choices, travel behavior, and system performance in the region in ways that are fully consistent with the expected consequences of new information technologies, as noted in the new paradigm research.

A host of similar stories can be told about areas and agencies as diverse as Detroit, suburban Chicago, Tulsa, and Las Vegas, among others. In each instance, fundamental change is taking place or is planned along one or more of the dimensions that can eventually lead to a truly new paradigm in transit service governance, design, and delivery.

Overview of a More Detailed Look at Paradigm Shift in Progress²⁶

In each of the instances highlighted above, there is clear evidence of efforts to reconsider and redefine the mission, business practices, and/or the organizational structure of what were at one point tradi-

²⁶ The case studies that follow were prepared based on information from agency web sites, agency documents, and extensive personal interviews and consultations with senior agency managers.

Motives for Fundamental Change

A major impetus for pursuing fundamental change in how transit services are designed and delivered arose through a recent transit development plan (TDP) process and a synthesis of community input that revealed to both the CAT staff and the board that delivering and extending current services in traditional ways could not meet the needs of the city, county, or outlying region that are increasingly interdependent. It also became apparent that the current organizational structure and traditional business practices offered little or no opportunity to adapt to this new reality. As an outgrowth of the TDP process, and with visionary leadership at both the staff and board level, a radical redefinition of the CAT mission, scope of activity, and business practices has been embraced. The changes envisioned are truly fundamental and are being actively pursued and supported broadly throughout the community among an ever-broadening range of partnering agencies, community leaders, and allies.

Fundamental Changes across the Dimensions

Mission. Although formal language may not yet reflect the fundamental nature of the shift in mission that has been embraced by CAT, the common understanding and concept used to describe the emerging mission is that the organization will become a “mobility enterprise” and that it will expand its role beyond Chatham County to serve the four-county, two-state region surrounding Savannah.

Customer. The impetus for a shift in mission and scope of activity clearly reflects updated knowledge about changing customer needs in the larger four-county region and a broadly shared commitment to meet those needs through an expanded set of services that appears seamless to the customer. Approaches to defining in more detail the measures to be used in assessing the quality of the customers’ experiences lie in the future.

Collaboration. The effort to dramatically shift the CAT mission to one of mobility management over a multistate region has involved a wide spectrum of organizations, interests, and community leaders across the several jurisdictions involved. Support for the overall concept manifested itself in the formation of an organizing committee that has prepared draft enabling legislation for consideration by both the Georgia and South Carolina state legislatures. Collaboration to date in support of a paradigm shift has involved the government, private, and nonprofit sectors, providing a broad base for future partnerships and alliances as the process moves forward.

Integration. Because the paradigm shift envisioned is in its early stages, the opportunity to integrate roles, responsibilities, functions, or services lies largely in the future. The recent initiation of CAT water ferry service with connections to downtown shuttle services, deployment of accessible taxi services, and development of a convention-based service plan jointly with the business community, however, provide a clear sense that a larger range of constituent and provider organizations are, in fact, willing to pursue integration on various levels necessary to support the larger paradigm shift anticipated.

Information Technology. The essential enabling role of state-of-the-art information technology is well-recognized as a critical aspect of the transition to a mobility enterprise. CAT plans within the next 6 months, subject to funding availability, to begin creation of the communications backbone that will be necessary to support the mobility enterprise. Initial efforts are likely to focus on wireless communications and AVL applications that can link the mobility enterprise to both its partners and its customers.

Organizational Structure. The most dramatic aspect of the paradigm shift underway at CAT is the structural change planned for the current county-centered organization and system. The organizing committee that was mentioned earlier has framed and defined the mobility enterprise concept and drafted a compact that is expected to lead to enabling legislation that must be acted on by the state governments in Georgia and South Carolina to bring the new mobility enterprise into formal existence. Under the current notions, the new mobility authority would have a strategic, regional responsibility for the full spectrum of surface transportation systems and services.

Status and Expectations

Support for what promises to be a paradigm shift for CAT is broad and strong. Tangible progress is in the early stages across most dimensions. The exceptions are the firm commitment that has been made to the “mobility enterprise” mission and the consensus that has been built around a compact that will guide formation of a new organization. Although the unfolding strategy begins with dramatic organizational change, early indications are that state governments may not take up the proposal in the immediate upcoming legislative session where limited time is likely to be committed to critical budget problems facing almost all states.

Motives for Fundamental Change

Community leaders in the Treasure Valley foresaw the need to enhance, expand, and more closely coordinate transit services throughout the area in the face of increasingly rapid growth and development. Following state legislature approval in 1994 of a law to allow citizens to vote on the formation of public transportation authorities, residents of Ada and Canyon counties voted 70 percent in favor of the formation of a regional transit authority.

Broader concerns about development and growth management in the valley also have been pursued in parallel with the formation of a regional transit authority. Emerging interest in smart growth has had two noteworthy outcomes. The first is broader recognition of the link between growth management strategies and transit and transportation investment strategies. The second is a higher positive profile for transit when it is associated with a broader growth management agenda designed to preserve and enhance quality of life and the character of communities.

Fundamental Changes across the Dimensions

Mission. The mission of ValleyRide is “to move people throughout the Valley by coordinating and providing convenient public transportation services” (emphasis added) with the purpose of providing “access to transportation choices...” to “support a livable and healthy community.” These ideas were broadly formulated to provide the core of the recently completed ValleyRide Strategic Plan and were conceived with the explicit desire to place ValleyRide in a mobility management role across the two-county region.

Customer. Although the transition from traditional transit operations on a community scale to mobility management on a regional scale is continuing, ValleyRide is clearly focused on the quality of the customer experience as a fundamental measure of performance and success. Although explicit measurement systems have not yet been put in place to monitor performance in customer terms, ValleyRide has identified seven principles to guide its activities. One of the seven is customer service, described this way in the strategic plan:

To make the customer the focal point of our processes, and to assure that the ease of use, flexibility of service, and satisfaction of the customer is of obsessive concern to ValleyRide, the providers, and other partners.

Collaboration. The statement above also signals the endorsement by ValleyRide of a concept fundamental to the pursuit of a new paradigm, i.e., that heightened customer focus invites and, indeed, requires the involvement of more than the traditional transit provider in serving mobility needs. This principle implies that partners and providers other than ValleyRide are an integral feature of the emerging institutional arrangements for enhancing mobility and that ValleyRide, as an organization, has as core responsibilities the management of these relationships and the performance of the partners.

During the formation of ValleyRide and preparation of the strategic plan, positive collaborative arrangements and associations have been built with major stakeholders and constituencies with an interest in mobility throughout the Treasure Valley, including representatives of local units of government and the counties, the county highway districts, the Idaho Transportation Department (ITD), the Community Planning Association of Southwest Idaho (COMPASS), existing providers, the private development community, the Treasure Valley Partnership, and others. State agency staff, business leaders, political leaders, employers, and other service providers all participated directly in developing the strategic plan. Developing and sustaining partnerships is one of five priorities cited in the strategic plan, and its importance is reinforced in another of the principles noted in the plan, that of “teamwork”:

To work in collaboration with our partners, stakeholders, and the public by demonstrating and practicing our willingness to continually improve how we work together for the benefit of our customers.

Finally, the strategic plan acknowledges the importance of open, direct, and constant communications in sustaining effective partnerships and pursuing the broader mobility management mission.

Integration. While formal operational integration of functions, services, and resources lies in the future, the strategic plan calls for the formation of a ValleyRide Management Council. Formation of the council will institutionalize oversight and monitoring of service integration initiatives. The full spectrum of providers and partners will participate on the council that will provide a mechanism to co-develop operational policy and procedures, seek efficiencies and optimization of existing services, collaborate on development of new services, and create the real meaning of ValleyRide through extraordinary customer focus.

Integration will also be supported through “cross-business operational teams” composed of staff members from various provider

organizations. The teams will support efforts to integrate across major functions, including marketing, customer relations, training and development, maintenance, and scheduling.

Information Technology. ValleyRide and its partners recognize the role and importance of state-of-the-art information technology in carrying the mobility management mission forward. Without a dedicated funding source for ValleyRide, however, resource constraints dictate that near-term investment priority be given to critical capital requirements and operating expenditures. One of the ValleyRide strategic plan priorities, however, is to secure stable funding, and a series of four goals have been established to guide pursuit of this priority. Additional resources will enable ValleyRide to move more aggressively to deploy the technologies that can support the new mission. It is likely that the work of the “cross-business operational teams” noted above will also clarify where and how new information technologies can be most useful and effective.

Organizational Structure. The organizational structure adopted by ValleyRide echoes the new, three-tiered organizational paradigm introduced earlier in the report. ValleyRide as an organization will set overall policy and manage and oversee the provision of coordinated services. Direction will be provided by the ValleyRide Board of Directors through a Management Committee, supported by the Treasure Valley Management Council (described earlier), the director, and the administrative staff. Primary functional responsibilities lie in four areas:

- Operations, which will focus on integration of multiple services and providers;
- Planning, which will focus on programming, technology, and land use coordination;
- Market Development and Community Outreach, which will focus on customer concerns; and
- Administration, including centralized human resources and finance.

The various operating agencies and service providers represent the resource that ValleyRide hopes to manage in serving customer needs.

Status and Expectations

The organizational foundation is in place on which to build an agency that embodies the themes and principles identified in the New Paradigms project, and a wide range of actors and stakehold-

As host to the 2000 Winter Olympics, the Salt Lake City region, the state, and the federal government invested aggressively to expand and enhance the region's transportation system. The results are a transit system and services that were acknowledged to be among the best ever in Olympic history and that now provide local residents and visitors with a unique, fully integrated, multimodal network of transit options that continues to grow with strong local support.

The success of the Olympic initiatives and a continuing series of major achievements in the expansion and use of the UTA system might, in times past, have served to reinforce continuation of the status quo in transit and transit management in the region. The UTA board and senior managers, however, have chosen these successes as a launching point, embarking on a dramatic program of fundamental organizational change—a paradigm shift—for the UTA organization and the region. By January 2003, after a year and a half of preparation involving a committee of 31 employees from throughout the organization, the UTA had fundamentally reshaped itself in ways that directly reflect the themes and principles that have emerged from the TCRP new paradigms work. The most significant change has been in organizational structure as the UTA has transitioned from a traditional monolithic operating agency to an organization with a “corporate” strategic business unit that oversees the activities of quasi-independent operating units defined by both geographic and modal responsibility and authority.

Motives for Fundamental Change

The motives for embarking on the types of organizational change described below included:

- The shift from a bus-only organization to a multimodal operating agency with major construction responsibility,
- Recognition that the organizational structure of a bus operating agency no longer fit what UTA was becoming,
- Board direction to enhance senior management's role at a strategic level,
- An acknowledged desire to bring operational decision making closer to the customer, and
- A desire to “flatten” the organizational structure and streamline decision making on behalf of customers.

Mission. The UTA mission is to offer “relevant” transportation across the six-county region, defined by the FTA as “. . . safe, technologically advanced public transportation which *enhances all citizens’ mobility and accessibility . . .*” (emphasis added).

Customer. A large impetus for organizational change at the UTA has been the commitment to improve responsiveness to the customer by moving decision making and service design closer to customers whose needs vary considerably in subareas around the region. A new, sophisticated market research effort has been initiated to establish a more detailed basis for defining and monitoring progress in meeting changing customer needs.

Collaboration. Through its Olympic system planning and development phases, UTA has established itself as a well-regarded, high-profile institution in the region. The focus provided by the Olympic effort, combined with the ongoing vision and commitment of community leaders, has fostered a close collaboration among the UTA, Salt Lake City, surrounding counties and municipalities, the regional MPO, and the state. In addition, the wide-ranging participation by UTA staff and employees, including labor officials, in the 1½ year reorganizational planning effort represents a level of internal collaboration that has contributed greatly to the success of the newly emerging organization.

Integration. Because UTA historically has been the region’s transit operating agency, the issues surrounding integration of functions, services, and resources under the new reorganization have focused largely on determining which functions should remain regional in scope, strategic in character, and centralized under the surviving UTA “corporate” business unit and which should be delegated to the new, largely independent business units. The redefinition and rearrangement of roles, responsibilities, and functions is described below under in the section on organizational structure. Perhaps the largest integrative challenge, however, and one that has been successfully met, was the necessary reassignment of personnel from within a centralized monolithic organization to and among the several new business units.

Information Technology. Like most major transit systems, UTA would be more aggressive in the deployment of state-of-the-art information technologies if adequate funding were available. UTA has a web-based trip planner that is integrated with its GIS system and its information call center. In addition, UTA has installed elec-

tronic message signs at all of the TRAX light rail stations. These message signs provide riders with real-time train arrival information and verbal announcements using GPS. Bus and light rail services are coordinated for the customer's benefit through a "Connection Protection" system that alerts bus drivers at stations when trains may be delayed, allowing buses to wait for passengers without requiring passengers to wait for the next scheduled bus.

Organizational Structure. The traditional agency structure has been reorganized dramatically to define and separate functions that are regional in scope and strategic in nature from functions and responsibilities that are localized and operational in nature.

The new "corporate UTA" business unit includes the following functions and responsibilities:

- General manager,
- Board coordination,
- Organizational development,
- Strategic think tank,
- Chief performance officer,
- Regional public relations and marketing,
- Capital planning and programming,
- General council/legal,
- Audit, and
- Civil rights.

A "central support" unit carries out the following functions:

- Financial management and services,
- Comptroller,
- Information technology,
- Customer service,

- Central maintenance and purchasing,
- Human resources,
- Training, and
- Security.

Four separate operating business units have a high degree of autonomy in planning and operating services and maintaining assets:

- Salt Lake City bus services,
- Provo/Orem bus services,
- Ogden bus services, and
- Rail services.

This organizational structure closely matches the three-tiered model found in other industries and other organizations in the transportation sector and is perhaps the most pronounced example to date of a new organizational paradigm that is consistent with the themes and principles that have emerged in the TCRP research.

Status and Expectations

UTA has embarked on a broad-based and fundamental restructuring that closely parallels the approach that has emerged in the new paradigms work. It is expected that the fundamental reorganization of the UTA will both increase efficiency and cost effectiveness of service delivery and ensure that the delivery of services will be far more responsive to local customers. Within the new organizational scheme, it is worthwhile noting the formal responsibility at the corporate level that has been established for strategic thinking, marketing, and performance management. In combination, these functions, more clearly defined as strategic in character and regional in scope, reinforce a paradigm shift that promises to be more customer driven and adaptive than either the past organizational structure or the structure currently hinted at in the UTA's broadly worded mission statement.

Transit in San Diego County serves 2.9 million people in a 4,200-square-mile area that includes widely varying travel characteristics that are changing constantly. In this county, transit undergoes constant pressures from new growth and development. Under MTDB guidance, San Diego Trolley operates 47 miles of highly successful light rail and San Diego Transit Corporation operates 74 local and 15 express routes. MTDB also oversees a host of contract services operating on varying geographic scales. NCTD operates 34 routes in the north part of San Diego County and contracts for the operation of the Coaster commuter rail service. Aggressive rail expansion is planned or underway in the north county as well as on the San Diego Trolley system serving San Diego and the south county area.

Despite the long history of successful transit planning and development in San Diego under these unique institutional arrangements, state legislation enacted in September 2002 required the consolidation of SANDAG, the MTDB, and the NCTD. The consolidation is underway with two major milestones having been reached or set:

- Assumption by the consolidated agency of planning and programming functions of the MTDB and NCTD by July 1, 2003; and
- Assumption by the consolidated agency of project development and construction-related responsibilities by January 30, 2004.

With the exception of direct operating responsibilities, which are to remain with current operating entities (SDTC, SDTI, and NCTD), functions and responsibilities in addition to those above may also be consolidated under mutual agreement. The result of these actions is a new organizational model that in many ways reflects the themes and principles of the New Paradigms research. The new model makes a clearer distinction between regional, strategic planning responsibilities and more localized operating responsibilities; it implies closer collaboration and more timely decision making between elected officials in the county; and it promises closer integration of transit-related functions and services.

Motives for Fundamental Change

The overt motives for consolidation are to introduce greater efficiency in both transit planning and decision making by reducing redundancy in agency functions and personnel and by streamlining the governance of transit planning, development, and operations through the actions of a single decision-making body. In addition, the consolidation was framed in a way that can provide a stronger, unified voice in managing regional affairs while retaining the responsibility for service delivery at a level that can remain responsive to the varied needs of subarea constituents, interests, and markets.

In many respects, the institutional arrangements in San Diego that preceded the current consolidation had evolved—well ahead of others in the industry—to reflect many of the themes and principles that have arisen in the New Paradigms research, as noted above. The MTDB, for example, oversaw but did not directly operate most of the services in San Diego. Rather, it planned, assisted implementation of, and monitored the performance of a host of providers, some as subsidiaries and some as contract providers, while it also regulated for-hire providers as part of a multimodal responsibility. The most noteworthy aspect of the consolidation, however, is the willingness to embark on a fundamental structural change despite a history of highly effective transit development.

Mission. The statute authorizing the consolidation, SB 1703, states that the mission of the new agency is to plan, program, undertake project development, and construct transportation infrastructure in ways that improve the efficiency and effectiveness of implementation and “provide for a focus on meeting the mobility needs of the region.”²⁷

Importantly, the view of the consolidated agency as a means to enhance comprehensive regional planning is described more specifically and in broader terms in the statutory goals established for the agency, i.e., among others, “reducing traffic congestion, limiting sprawl, and improving the quality of life for San Diegans.”²⁸ In other words, there is a clear expectation that the mission extends beyond simply planning and programming transportation investments to influencing land use and development in ways that change the traditional patterns of suburban sprawl.

Customer. In the last 2 years leading up to the consolidation, the MTDB completed a strategic planning exercise that included an extensive market research program. The market research looked beyond socioeconomic indicators to the detailed characteristics of travel modes and traveler behavior as a basis for service planning and design. The framework developed through the research allows operators to target changes in the characteristics of service in ways that will appeal directly to riders who share common perspectives and expectations. This represents a first step toward possible development of a monitoring system that more rigorously assesses the

²⁷ SB 1703 Senate Bill Enrolled, Chapter 3, Article 1, 132350.1(c).

²⁸ SB 1703 Senate Bill Enrolled, Section 1.

quality of the travel experience, a key principle from the New Paradigms research.

Collaboration. Transit and transportation planning, programming, and implementation in the San Diego has been highly collaborative in the past, although coordination of services across jurisdictional boundaries within the county has proven to be an ongoing challenge. The consolidation of SANDAG, MTDB, and NCTD will bring responsibility for transit and transportation decision making under a single set of elected officials acting through the board and committees of the consolidated agency.

Integration. Integration of various operational aspects of transit service delivery has been a hallmark of transit operations in San Diego for some time. Service standards, including flexibility for variations locally, have been in place along with fare integration for some time. Far more extensive integration of organizational functions and responsibilities will be immediate and direct under the consolidation. The first phase will involve integrating planning and programming functions, as defined in the enabling legislation; the second phase will involve integrating project development and construction-related activities and responsibilities among the three agencies.

It is expected that integrating and combining responsibilities in these areas will result in more complete and comprehensive integration in several dimensions:

- Integration of services at the boundaries of service areas;
- Integration between transportation modes, including modes of transit and highways; and
- Integration of transportation decision making with land use, development, and economic development decisions.

Information Technology. Transit services in San Diego County have been among the most effectively planned and managed in the county due, in part, to well-paced strategies that have kept San Diego at the forefront of new developments while minimizing the risks of moving too quickly into large investments in unproven technologies. With respect to the deployment of new information technologies, travel on the Metropolitan Transit System already can be planned through a web-based trip planning system.

A more recent technological initiative is the planned deployment of a regional smartcard system. In September 2002, the MTDB

announced an agreement that will allow full access to the MTS network—buses, the San Diego Trolley, North County buses, and the Coaster commuter rail system—with the use of a single electronic proximity card, or smartcard. There is discussion of eventually expanding the use of the technology beyond transit to pay parking fees or even to provide ballpark admissions. Because the same vendor is designing and deploying a similar system in the Los Angeles region, it is conceivable that a single smartcard could eventually provide transit access throughout all of Southern California.

Organizational Structure. The new organizational structure being put in place in San Diego directly reflects a set of requirements set out in statute passed by the state legislature and signed by the governor. The requirements dictate the overall form of the new, consolidated organization, as well as the placement of key functions within and among the current organizations and consolidated agency. The requirements also define the structure, responsibilities, and membership of the consolidated agency board and committees. The overall framework and assignment of functions very closely parallels the three-tiered model that has emerged from the New Paradigms research:

- The consolidated agency will have a decidedly regional scope and strategic agenda.
- It will serve as an oversight and management organization focused on service integration with a customer orientation.
- Actual transit service and operations will be performed by current operating agencies or contractors.
- The consolidated agency will consolidate planning and programming functions, as well as major project development activities, and oversee major construction projects.
- It is likely that other functions now being performed at varying levels by MTDB, SANDAG, or the operating agencies will also be transferred to the consolidated agency to the extent that they are considered critical at the regional scale and to the strategic mission.

The detailed transition of functions and personnel and the ultimate shape of the consolidated organization are being planned in detail with the full involvement of staffs and policy makers representing each of the major organizations involved.

and 107,000 on municipal systems. The LA MTA is the lead transportation agency in the county and serves as the planner, designer, builder, and operator of an increasingly multimodal network. LA MTA responsibilities include

- Bus, heavy rail, light rail, and paratransit operations;
- Bus rapid transit (BRT) system development and operations;
- High occupancy vehicle (HOV) system development;
- Countywide planning, programming, and funding responsibility that includes local road and highway improvements, bikeways, pedestrian facilities, demand reduction strategies, and transportation system management (TSM) strategies, including land use and smart growth;
- Partnering in an aggressive transit-oriented development (TOD) program;
- Joint management of the Metro Freeway Service Patrol and Call Box system with the California Highway Patrol; and
- Management of the Alameda Corridor freight rail project.

The LA MTA was created in 1993 from consolidation of the former Los Angeles County Transportation Commission (LACTC) and the Southern California Rapid Transit District (SCRTD) and has operated for most of its existence as a traditional monolithic transit operating agency. In recent years, LA MTA roles and responsibilities have expanded either as dictated by state law (e.g., congestion management and funding allocation) or through locally negotiated program and project partnerships (e.g., Freeway Patrol and Alameda Corridor).

Over the past 2 years, however, the traditional organizational structure of the LA MTA has been dramatically reshaped. Fundamental changes are in progress across each of the six key dimensions of change identified in the New Paradigms project. The emerging organization now resembles, in large part, the three-tiered model described earlier. The creation of five “community-based transit service sectors” serving as local bus operating subsidiaries has created a clear separation between strategic roles and responsibilities to be exercised on the countywide or regional level and local service planning and operating responsibilities to be exercised largely at the subregional level through a potentially wider spectrum of operating arrangements, including direct service provision and contract services.

Motives for Fundamental Change

The principle motive for the separation of strategic regional responsibilities from more localized operating responsibilities arose from a broad acknowledgment that uniform design and provision of services on a countywide basis do not provide the flexibility, adaptability, or efficiency to meet the needs of a region as large and diverse as Los Angeles County under constantly constrained resources. Service planning and development—and associated accountability for operations and service quality—must be more responsive to local goals, perspectives, travel demand, and circumstances. In addition to heightening customer orientation, the service-sector model is expected to yield greater efficiencies in the delivery of services.

Fundamental Changes across the Dimensions

Mission. The 2001 25-Year Long-Range Plan clearly broadens the mission of the LA MTA by speaking directly of the LA MTA responsibility to address “future mobility needs” through multimodal actions. The reference to improved mobility, in turn, is tied directly to an emphasis on transit’s role in meeting other higher-order regional goals:

The mission of the MTA is to improve the quality of life and the economic well-being of the residents, workers, and visitors of Los Angeles County through transportation investments that *improve mobility, air quality, and access to opportunity* (emphasis added).

Customer. The reorganization of the LA MTA, as described below, is being undertaken with a clear goal of increasing responsiveness to customer requirements and expectations. While attention to the quality of the customer experience is gaining importance with the reorganization, customer-related measurement and monitoring activities continue to be focused in large part on equity issues that arose out of concern and court action to ensure a balance in rail and bus system investment. The delineation of systems, services, and facilities to be operated centrally versus those to be operated by the community-based service sectors has also triggered a review of basic LA MTA service standards that is currently underway.

Collaboration. Many factors converge in Los Angeles County to necessitate a high level of sustained collaboration between agencies, organizations, and stakeholders in transportation and transit decision making. First, the institutional complexity of Los Angeles County is extreme, like most major metropolitan areas. Second, transit and transportation policy and investment decisions are high-profile actions in Southern California. Third, LA MTA has acknowledged in its long-range plan that LA MTA acting alone cannot achieve the region’s goals and that partnerships and collaboration on a broad scale on issues outside LA MTA’s immediate control are

essential for future progress in enhancing mobility. In the 2002 publication *Mobility 21 Summit: Los Angeles County Moving Together*, chief executive officer Roger Snoble states that

MTA can be a catalyst for bringing people together, for forming partnerships, for getting things done. We have a huge responsibility to work with our partners. MTA can't do it alone.

Collaboration with local officials, citizens groups, other service providers, the business community, labor interests, the freight community, and state and federal lawmakers is taking place on a sustained basis and was a strong focus of deliberations and planning that led to the reorganization now underway. In addition, individual LA MTA program and project initiatives are providing increasing opportunities for collaboration. In February 2003, the LA MTA launched a series of five contracted transit pass programs to expand transit relevance and ridership. They include two variations of an annual photo-ID employer pass program, an Institutional Pass Program available broadly to a wide range of large organizations or groups, a weekly Juror Pass Program, and a Visitors Pass Program that links the LA MTA with a range of organizations and that facilitate business and casual visitor travel to and around Los Angeles County.

Integration. Services, facilities, and systems that support the design and delivery of transit services in Los Angeles County are being continually integrated. The integration is occurring across jurisdictions within the county, across agencies on a multicounty regional basis, and through combined resources committed to joint programs and projects. The principle vehicles supporting integration are the LA MTA's countywide programming process, the initiatives underway to expand deployment of state-of-the-art information technologies, and the LA MTA's own effort to sort out and link internal functions and business processes as part of the creation of the community-based service sectors.

Programming, prioritization, and funding decisions are guided by the LA MTA with the involvement of a wide spectrum of agencies around the county that must apply five broad criteria to ensure that prospective investments in eight multimodal project categories are adequately integrated. The criteria include

- Regional significance and intermodal integration,
- Project need and benefit to the overall transportation system,
- Local match,
- Cost effectiveness, and
- Land use and environmental compatibility.

The deployment of state-of-the-art information technologies, as discussed below, is by nature an integrative exercise that benefits both the customer and the service providers. The LA MTA has in place a web-based trip planner and introduced in September 2002 a monthly Regional EZPass. Part of the LA MTA vision is to see use of the Regional EZPass extended to Orange County and potentially to San Diego County to create a truly integrated network of services throughout Southern California.

Finally, the reorganization effort focuses on issues of integration through the delineation of responsibilities to be shouldered by the LA MTA corporate office and those to be carried out by the service-sector operating units. These distinctions are described in greater detail in the discussion of organizational structure change below.

Information Technology. The LA MTA is aggressively pursuing creation of a seamless system of services across the county and is advancing various information technologies as a core strategy. LA MTA already has in place a web-based trip planner, "Metro Trip Planner," that covers a four-county area. Plans are underway to expand the scope of the system beginning in July 2003 by increasing the participation of other transit operators in the county.

The LA MTA also has underway an Advanced Transportation Management System (ATMS) initiative that will provide each bus with radio communications, AVL capability, automatic voice annunciators, universal fare system capability, automated passengers counters, video surveillance, and vehicle health monitoring capability. The resulting "smart bus" will provide both customer and management benefits. Plans are to have the full bus fleet ATMS-equipped by the end of 2004. Additionally, the BRT system being implemented includes real-time bus arrival displays at each stop.

In addition, the launch of the Regional EZPass program in late 2002 represents the first step toward implementation of a smartcard-based universal fare system that will be introduced within 3 years. The monthly EZPass provides for unlimited travel on LA MTA bus and rail services as well as on the bus services of 11 other municipal systems. Efforts are underway to expand the system to other providers, including the Metrolink commuter rail system, and possibly to other counties in the region.

Organizational Structure. At the core of the LA MTA's recent change initiatives is the effort to move management and oversight of bus operations out of the LA MTA corporate structure and into five community-based service sectors. The goal is to provide greater responsiveness to transit needs at the local level. The service sectors are semi-autonomous, and each is headed by a general manager with broad authority to shape and design service. The first two sec-

tors began operation in July 2002 in the San Fernando Valley and the San Gabriel Valley.

The mission of the service sectors is to

improve bus service; increase agency accessibility and responsiveness; promote greater coordination; maintain an employee-supportive work environment; and create a more efficient and customer-focused management structure for the delivery of bus service.

The following principles have been adopted to guide management of the service sectors:

- Localize control;
- Maintain a single point of contact for route-level service issues;
- Balance responsibility with authority;
- Streamline the decision-making process; and
- Support agency policies, plans, and safety initiatives.

Creation of the service sectors has required revisions to, and added clarity in, the delineation of responsibilities that are to remain with the corporate unit and those that are to be shifted to the service sectors.

The corporate business unit of LA MTA will retain the following responsibilities, guided by the LA MTA board:

- “Tier One” interregional service operation, including Metro Rail, Metro Rapid (BRT), Rapid Bus, and Express Bus operations;
- Budget and capital planning;
- Collective bargaining agreements;
- Fare policy and service standards;
- Performance monitoring and tracking for all programs;
- Intelligent transportation systems (ITS);
- Communications and community relations for corporate bus and rail service actions;
- Government relations;

- Construction management; and
- Finance.

The individual service sectors have a broad responsibility to plan, deliver, and monitor services, including

- Operating budget development;
- Administration of annual operating budgets;
- Route planning and service improvement initiatives;
- Management of maintenance and transportation, including dispatching, personnel, accounting, and safety;
- Contracting for services, both administrative and operational;
- Service coordination in conjunction with LA MTA corporate staff and other service sectors;
- Administrative support, monitoring, and reporting operating and financial performance;
- Community relations and public affairs for Tier 2 and 3 services; and
- Legal and regulatory compliance in operations, including compliance with collective bargaining agreements.

In each service sector, Sector Governance Councils are being established to ensure that service design and delivery are fully responsive to local needs. Each council will be composed of nine members appointed by the LA MTA board from a local nominating process. The Sector Governance Councils will oversee service planning and delivery, including

- Sector budget review;
- Sector program plans and implementation;
- Performance monitoring and oversight;
- Policy compliance;
- Public involvement and oversight; and
- Communications with LA MTA headquarters, executive staff, and board.

The reorganization of the LA MTA reflects very closely the themes and principles identified in the TCRP New Paradigms effort. Strategic regional responsibilities have been distinguished from local operating responsibilities; a major portion of the responsibility for the provision and management of capacity has been moved closer to the customer through establishment of independent, semi-autonomous service sectors; collaboration on and integration of services and functions is expanding; and programs are underway to introduce state-of-the-art information technologies to support a heightened customer focus and the expanding partnerships that are in place or planned. All of this is being done with a commitment to improve mobility and access across one of the largest, most dynamic, and most auto-dependent regions of the country.

Status and Expectations

All five service sectors have been established and general managers appointed for each sector. Sector Governance Councils are being appointed, and corporate-level initiatives and programs are continuing to hasten the establishment of seamless services across Los Angeles County. The expectation is for greatly heightened responsiveness to localized mobility needs and eventual cost savings and efficiency increases from the move to a new paradigm.

Summary

The descriptions of fundamental change in local public transportation organizations provided above are only a few of the examples that serve to document the paradigm shift beginning to take place across the U.S. transit industry, in systems both large and small. When the New Paradigms project began, the nature, the extent, and the pace of fundamental change that is taking place were unimaginable. The research unveiled a framework and critical dimensions along which fundamental change could be predicted and monitored.

What is now taking place is truly remarkable. Actions that appeared to be isolated and localized only a few years ago can now be viewed as the movement of an entire industry of widely varied organizations toward a new frontier following a consistent set of themes and principles. The new frontier, in turn, can be described in simplest terms by a three-tiered organizational model that has its roots in the actions of other business and industries both inside and outside the transportation sector. Finally, common to the change initiatives described above is the progress that is being pursued across six critical dimensions of change that have emerged as widely embraced themes and principles to guide pursuit of a new paradigm in public transportation.

5.0 Conclusions

Enormous change is occurring in public transportation organizations across the country, and the changes are coming at an accelerating pace. What began as a search in a vacuum for the direction of change that the public transportation industry might take has ended as a verification and validation of powerful common principles that can be seen in the independent actions and activities of dozens of visionary professionals, policy makers, and leaders. The New Paradigms project has at once defined a framework, principles, and guidelines for fundamental change—for a new paradigm—and introduced a perspective that allows the independent actions of local industry leaders to be seen in the light of an industrywide phenomenon.

■ 5.1 The Continuing Research Agenda

Change initiatives of the scope and scale of those described throughout the New Paradigms project are certain to gain momentum in the months and years ahead. It is also likely that the framework and principles that have emerged from the New Paradigms research will evolve in unanticipated ways with unforeseen consequences.

As noted earlier, the changes described to date remain works in progress. As a result, it will be enormously important in the years ahead to continue and to expand the effort to track, understand, and document the pursuit of fundamental change and the emergence of a new paradigm.

The responsibility for continued monitoring and reporting on paradigm shift may shift from pure research to an agenda to be carried out by the industry itself, through the American Public Transportation Association (APTA), the Federal Transit Administration (FTA), and the American Association of State Highway and Transportation Officials (AASHTO). The continuing agenda might include the following activities:

1. Conduct a National Survey

At regular intervals, an industrywide baseline survey should be considered to monitor strategic organizational change across the transit industry in future years and chart the pace of change. Such an undertaking would also provide a way to regularly

alert the entire industry to the significance of changes taking place. The survey might include several lines of questioning:

- At what stage are respondents in considering fundamental change across each of the six key dimensions described in the TCRP work (e.g., are they contemplating, formally planning, or deploying/implementing, or have changes already been put in place)?
- What have been the motives and expectations for the actions taken?
- What have been the results, if any?

2. Convene a “Change Leadership” Group

There are perhaps 20 or so recognized industry leaders that are currently spearheading fundamental change of the kind described throughout the paradigm project. These leaders represent a powerful source of insight and leadership that should be acknowledged and drawn on periodically. One approach might be to convene them on a regular basis to examine actions they have taken, motives, expectations, approaches, and consequences. Stakeholders such as local and state officials and/or labor representatives might be included. The results could provide potential case study candidates and provide new information for the New Paradigms web site (see Activity 5 below), as well as provide a mechanism to recognize, encourage, and support their efforts.

3. Develop a Rolling Series of Case Studies

Results of the New Paradigms project suggest that there is enough fundamental change underway today to support development of a continuing series of case studies. This final report contains information that should be updated and kept current while new examples emerge for examination. The results of continuing case study work can be published in hard copy, disseminated through industry and trade press, and added to the web site.

4. Periodically Scan Paradigm Shifts in Other Businesses and Industries

Much of the material assembled during the project on key themes and principles of paradigm shift emerged from reviews of change in other businesses and industries. A periodic scan of fundamental organizational change (or further developments in earlier examples) at this broader level, and related follow-up

research, will likely reveal additional valuable insights, which should be reported and presented to the transit industry on a cyclical basis.

5. Host and Manage the New Paradigms Web Site

A New Paradigms web site has been established through the TCRP project and resides on a Cambridge Systematics project server (www.newparadigms-transit.com). Cambridge Systematics has an obligation to manage it only through July 2003. Responsibility for the web site needs to be assumed somewhere among the interested parties and can be managed at minimal cost, assuming commitments are made to regularly update web site content.

6. Hold a Paradigm Shift Conference

On a regular basis, perhaps every 2 to 3 years or in some relation to the survey described in Activity 1 above, a larger gathering should be attempted to highlight progress, assess implications, recognize groups that are pursuing fundamental change, and encourage groups that are interested but have not yet embarked on a paradigm shift. Alternatively, new paradigm issues, themes, principles, and experiences might be featured in the course of regularly scheduled APTA and/or FTA meetings.

7. Broaden and Deepen the Inquiry with European Counterparts

The EU and major individual agencies in Europe are far down the path to a new organizational paradigm in transit. Unfortunately, the relevance of European experiences in transit planning, management, and governance are often dismissed for historical, political, and cultural reasons. The TCRP project has opened communication with senior officials in Paris and London who are interested in continued relationships on paradigm shift issues. These relationships should be expanded on both the formal and informal levels, perhaps by introducing the New Paradigms topic into the International Transit Studies Program.

8. Link the Entire Effort (Possibly through a “Center for Strategic Change”)

All of the above activities are linked and would benefit from coordinated guidance and oversight, regardless of how each is implemented or pursued. The idea of a central coordinating role, function, or body carries with it the prospect for building important partnerships and co-sponsorships, as well as the opportunity for added visibility and impact.

Appendix A

Pursuit of a New Paradigm: The European Experience¹

With the conclusion of the New Paradigms study, and the publication of this report, it is worthwhile to present a review of developments in the implementation of the Paradigms concepts that have occurred since the publication of *TCRP Report 58*. This background case study examines recent developments in terms of the six dimensions of change described in the preceding chapters of this report. The report is the result of many interviews undertaken over the past 2 years and reflects the personal experience of key decision makers in the European transit industry. For a variety of reasons, from language to time availability, the report does not follow the exact format of the self-evaluations by the key managers themselves, but takes the form of a narrative based on the direct interviews and background material chosen by the local leaders for inclusion and reference in the report.

In this case study, the six major dimensions of the New Paradigms project are addressed in the following order:

- Organizational structure change;
- Mission shift;
- Customer focus; and
- Collaboration, integration, and use of information technology.

■ Organizational Structure Change

In order to bring about the key concepts documented in the New Paradigms project, the question of organizational structure must be addressed. In North America, the New Paradigms process examined, in the abstract, the question of the evolving structure of local public transportation organizations. While these questions were being explored with the American practitioners, a group in the European Union was negotiating the future structure of European local transit organizations and dealing with exactly the same issues as explored in the New Paradigms dialogue. Central to these deliberations is the question of the ability

¹ This paper was developed by Matthew A. Coogan as part of a continuing effort by the New Paradigms research team to chronicle the fundamental changes in public transportation organizations in Europe.

of the public authority controlling the public subsidies to make unbiased decisions between and among a wide variety of potential operators, resulting in a better match between services and mobility needs.

This case study will review how the management structure governing public transportation services has evolved in Paris, London, and other cities over the past 2 years, relating this management structure change to several other key elements of the overall New Paradigms project. The driving legal force behind the sudden need to set regulations governing the structure of local transportation organizations was based on a series of laws concerning free market competition and unified procurement processes rather than on any abstract concept such as better service. But the way in which the European transit industry reacted to the proposed legal regulations provides a vibrant case study in the need for the industry to adapt to changing political realities and improve its ability to provide better services. In particular, the case study of the reconstruction of the local public transportation organization in Paris provides a wide variety of case study material relevant to the core themes of the New Paradigms study.

A Three-Level Model Used in European Conceptualization

The New Paradigms project has explored a future world of transportation characterized by

- A greater array of public mode services offered by a greater variety of service providers,
- A seamless presentation of these services to the individual customer, and
- The application of information technology and management controls to make this all possible.

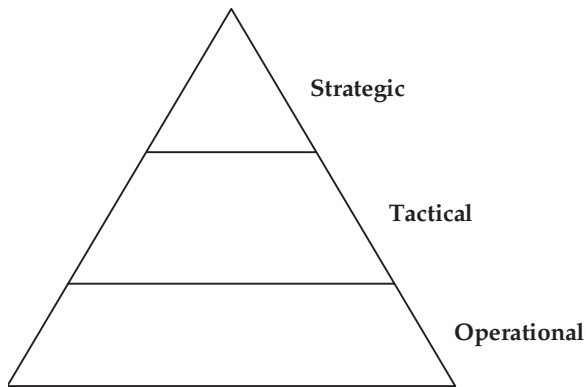
A major theme is the concept that the design of services can be separated from the execution of those services. Revealed through this framework is the concept that the service should be provided by whatever mechanism is most efficient and appropriate for the given situation. A key issue in the evolution toward this model is the role of the historic monopoly organization that supplies public transportation services in most large cities throughout the world.

The New Paradigms team has interviewed a wide variety of transit managers and service providers and has noted the wide variety of mechanisms for carrying out this revised vision. Figure A.1 shows a diagram that was used by the European transit leaders to help explain the nature of the structural issues. In interviews with key leaders in the area of structuring transportation organizations, the New Paradigms team was given this three-layer model. Each of the three layers must be addressed in the design of a new structure for local transportation organizations, and the role of both public and private parties at each level has to be determined.

The Problem of the Public Monopoly

In terms of the three-layered diagram, the government monopoly organization is the simplest to portray. The traditional public monopoly transit agency sets policy (strategic), sets

Figure A.1 Three Layers of a Local Transportation Organization



routes and schedules (tactical), and provides the services (operational). This is the model that all parties understood was going to be challenged by the new EU laws and regulations.

In a series of interviews with major players in the process, the New Paradigms team learned that there was wide agreement that the status quo condition was not viable and would not survive. The status quo could be summarized as the universal acceptance of major state-owned monopolies as the dominant service providers throughout Europe, where “public transportation is operated by a public company with an operation monopoly. This monopoly was obtained without an initial call for tenders and sometimes without time constraints.”²

In the words of Guy Bourgeois, the Director of Strategy for the Paris transit agency, Regie Autonome des Transports Parisiens (RATP), there was considerable agreement that “the European Commission would strongly attack public monopolies that they [the European Commission] consider too costly, inefficient, and too often... a puppet in the hands of trade unions.”³ One public manager told the New Paradigms team that the existing structures were, in fact, too isolated from public control. “We really didn’t report to anyone,” the manager said. “We could do whatever we wanted. There really was no accountability.”⁴

The need for the new set of rules was summarized in a legal memo provided by the staff of the European Commission. They noted that, historically, public transportation was a national, not international, industry, “organized on the basis of historical monopolies, with

² Remarks of Guy Bourgeois to the American Public Transportation Association, September 24, 2002, Las Vegas, Nevada.

³ Ibid.

⁴ Personal communication to the author.

each operator holding an exclusive right.”⁵ But, in the 1990s, member states began turning to private operators for public transportation and, because of this, operators from one country began to compete in other countries. The lawyers note the existence of nine separate multinational transit operators:

Until recently, the national character of the public transport industry meant that, even if the competition provisions of the Treaty were infringed, there was no potential effect on trade between Member States. Now, with the internationalization of the industry, this is no longer the case.⁶

The key issue for the monopoly operators is the establishment of “exclusive right.” Against this model, the memo notes that the law “has the effect that any exclusive right must be necessary in order to achieve a particular public benefit. It must be proportionate—it must not limit competition more than is needed to secure that this public benefit is achieved.”⁷

The EU lawyers argued that these exclusive rights could be challenged even when they were established to allow cross-subsidization between services. The exclusive rights could be challenged when the holder of the exclusive rights provides a poor level of service. And they could be challenged if the exclusive rights were carried out in a manner that did not restrict trade across national boundaries.

While laws concerning procurement did not cover services performed inhouse, laws concerning “Community Competition” specifically did cover services performed inhouse. Thus, the commission staff recommended that a new series of regulations be established to determine when the public awarding authority could and could not choose a public body to provide the services without competitive bid.

The First Proposal from the European Commission

Early in 2001, it was clear that the European Commission [EC] was proposing the privatization of all urban transportation services in Europe. As Bourgeois noted, “This means that public companies [had to] choose between two options: getting privatized altogether or in parts, or disappearing.”⁸

Representatives of 10 of the largest European transit agencies began to meet together to form common lobbying positions. The representatives realized that the issue had to be addressed by the legislative process, lest it be left to a last-minute decision of the courts. The legal position, in the words of the working group, “demonstrates, in the absence of regula-

⁵ “Draft Regulations on Public Services in Transport—Legal Background.” Prepared by the staff of the European Commission, May 2001. Document contained in “European Regulation Project on the Opening to Competition of Urban Transportation Markets: The Position of the RATP and of the Major Metropolises Group of Public Transport Undertakings.” (Sept. 2002)

⁶ Ibid.

⁷ Ibid.

⁸ Bourgeois, APTA Presentation.

tions, that when dealing with current affairs, the European Court Justice's interpretation of the provisions at stake may result in a brutal and uncontrolled opening of the urban public transportation market."⁹ Thus, the representatives decided to act proactively to make the case for a continued presence of the existing public transit authorities, all the while acknowledging that their most fundamental structures would have to change.

Separating the Mobility Management Authority from the Service Provider

An early area of agreement between the EC proposal and the position of the 10 large metro transit authorities covered the need to make a separation between the strategic level and the operating levels. In some working models, tactical powers would remain squarely in the public sector, and in some working models, tactical powers are left to the private operators. The early EC proposal called for the separation of funding authorities from the entities operating the services. Throughout Europe, new contracting authorities are being created with the overall responsibility of providing for mobility in a wider context, but are not designed to provide service or compete against the private-sector operators.

In Paris, the existing regional coordination agency was replaced with a new funding authority, the Syndicat des Transports d'Ile de France (STIF). This agency collects the funding from the various government sources, defines the amount of service, and sets the standards to be experienced by the customer. This concept is essentially uncontested. Thus, a key undisputed concept in the development of the mandated management structure for all EU public transportation operations is that the agency that defines the mobility strategy is separated from the entities that operate the service. The EC has promulgated a set of new regulations intended to distinguish the roles of public authorities from the roles of operators.

Beyond this significant point of agreement, a healthy debate ranged on the desired roles of public- and private-sector participants. On the one hand, the logic of separation of functions is well understood by the parties. On the other hand, dissolving large, and often well-managed, institutions in favor of alternative structures with unknown risk is seen as a questionable direction to take. All of this left the leaders of the large city transit industry with a major problem. On the one hand, a complacent attitude would not work within the reform-minded structure of the EU. On the other hand, abandoning major institutions en masse did not make sense either:

For the major metropolises, the issue is not the choice between direct management or delegated management, but to determine the room to give to the one and to the other and to find the right balance between the need for competition and the need for integration.¹⁰

⁹ "The Position of the RATP, etc." Sept 2002.

¹⁰ Major Metropolises Group of Public Transport Undertakings, October 27, 2001, "European Draft Regulation . . . Concerning Public Service Requirements and the Award of Public Service Contracts in Passenger Transport . . . COM (2000) 7 final."

The Public Agencies Fight Back

In spring 2001, the transit agencies were presented with draft regulations that allowed for strong public leadership at the strategic level and forced the acceptance of strong private roles at the operational level. Some room for variation was left in terms of the tactical level: routes and schedules could be entirely by the public sector (as in the case of London Transport Bus), entirely by the private sector, or some combination of both.

At this point, the leaders of the major publicly owned transportation organizations were galvanized to affect the direction of the EU policy. The first modification of the policy they sought would allow for the operation of all rail services by a publicly owned and managed operating company. On May 24, 2001, Robert Kiley of Transport for London and Jean Paul Bailly of RATP signed a joint position paper that outlined the case for excluding the metro (rail) systems from the obligation for competitive bidding. Entitled "Integration or Competition? The Dilemma Facing Major Metropolises," the paper argued that the highly integrated metro (rail) systems should not be broken up into small pieces for individual bidding. It argued that these metros "have certain features that make it impracticable to divide them into small, readily contestable units." The paper shows how rail transit systems "demand very close coordination between the operation of the stations, trains, lines, and interchanges between lines. Such minute-by-minute coordination can only be achieved by having unified day-to-day operational control across the entire network."¹¹

Wholesale transfer of the management of the major rail systems would result in a dilemma. Given that the operations should remain integrated, the result of such a transfer would be a simple transition from a public monopoly to a private monopoly. As the above position paper states,

If such metro systems were to be put out to tender on this basis, the new operator would rapidly gain an incontestable advantage because of the acquired knowledge of a system that is highly specific in nature. If the contract were won by an independent private company, the transport authority would be faced with an almost unassailable private monopoly with little hope of bringing in a new operator.¹²

The joint position paper then dealt with the issue of the desirability of putting out to tender the rights to bus routes that feed the metro services. The joint position on this issue is made more complex by the fact that Transport for London and RATP have radically different strategies in this area, with RATP hoping to keep the operations in public hands, while Transport for London designs the services, but contracts them out. The paper points out that "the integrated service operator is best able to devise the most cost-effective way of running such integrated services. This requires several integrated systems—passenger information, integrated fare structures, interchange movement, passenger safety, etc."

¹¹ Kiley and Bailly, May 24, 2001, "Integration or Competition? The Dilemma Facing Major Metropolises."

¹² Ibid.

The position paper criticized the proposed EU regulations, noting that “the compulsory breakup of integrated operators is contrary to the objective [of] developing public transport and improving the quality of service. The regulation should not be applied in such a way as to result in the fragmentation of the transport system of large cities.”¹³

A New Contractual Arrangement for Public Operation of Rail

The EC responded first to the issue of mandatory tendering process for the rail systems. For all rail services, the local transit authority can proceed with the competitive bidding process or provide the services with a publicly owned company provided that several conditions are met. First, the public authority must publicize in advance its plans of directly awarding a contract without a preliminary call for tender. Then, the publicly owned operating company must meet a series of performance objectives specified in the contract with the public authority that are transparent and observable by the public. Finally, once the performance of the public operator is known, potential competitors are allowed to submit proposals during the last year of the contract with the publicly owned company. The system at one time accepts the logic of direct management, but allows for a challenge from a private competitor if appropriate. The solution, still under development, involves the EC offering

[the] option by which a contract may be awarded direct for a rail service; granted that there is a full commitment in terms of performance results (direct management + challenge) and the possibility for competitors to present alternative proposals during the year prior to the termination of contract of the acting operator.

A key architect of the “Direct Management + Challenge” form of contract is Guy Bourgeois. At a recent meeting at APTA sponsored by the New Paradigms project, Bourgeois told the American transit industry that the new mechanism “allows us to preserve the integration of transportation networks of major cities, and to thereby provide improved quality services to passengers while guaranteeing a satisfactory use of public funds.”

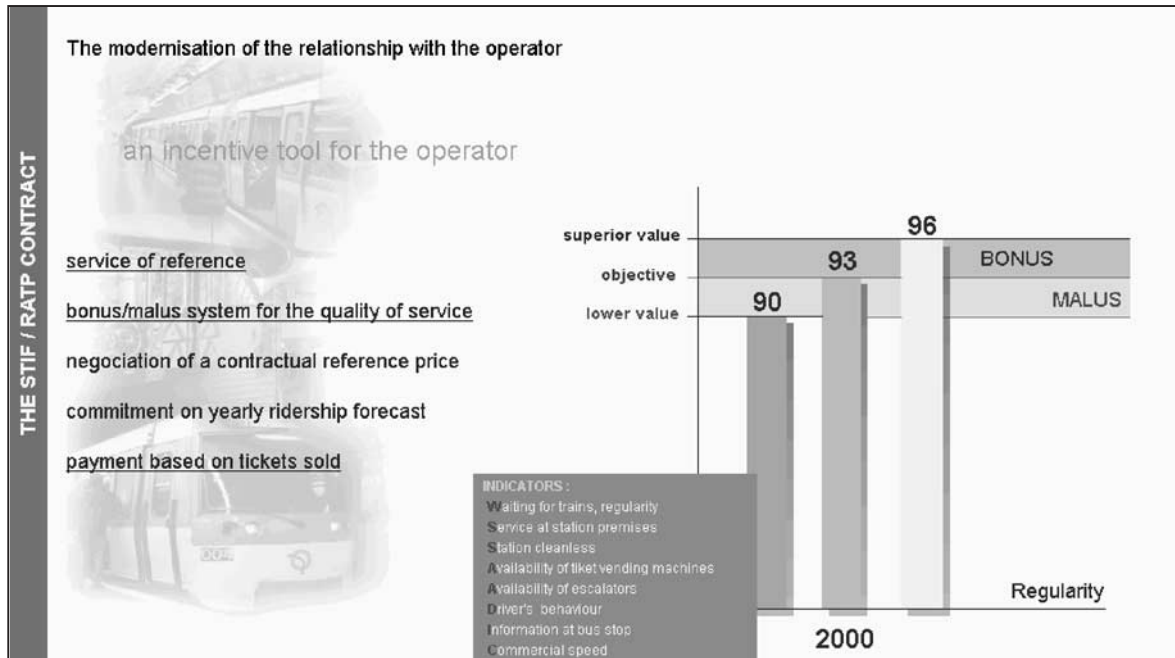
The contract with the publicly owned operating company is public, and the operator’s performance is known by all. If a competitor presents an alternative, the authority must review this proposal and make a decision in the same time framework of the call for tender.

In effect, the EC did not back down from its concern for transparency and accountability. The traditional public monopolies essentially have to split up into two distinct levels: the contracting authority that writes the contract (this authority is at least free in principle to choose an operator other than the public company) and the publicly owned operating company that carries out the contract.

Concerning the transparency of operating characteristics, the public operating company has to meet performance standards just like the private companies, which then have the right to challenge the performance of the public operator. “Direct Management + Challenge” is

¹³ Ibid.

Figure A.2 An Incentive-Based Contract with the Public Operating Company



an attempt to force the public operators to learn to compete in terms of specified measures of performance, even if the public operators’ risk of losing the privileged position is slight. In this concept, there is some distance between the funding agency and the operating agency.

Accountability for the Public Company

A key aspect of the separation of the public contracting authority from the publicly owned operating company is the concept that the public operating company must become accountable for its actions and subject to the same scrutiny in its performance as would be applied to the privately owned competitor. Looking at Paris as the working example of this concept, in the contract between the public authority (STIF) and the public operator (RATP), a series of sophisticated incentives have been designed.

As expressed by RATP staff, “STIF rules the transport policy and sets the fares. RATP is responsible for production of services, in volume and quality.”¹⁴ RATP staff argue that there is “a change in culture, from means to results.” The EU regulations require that the “contracts

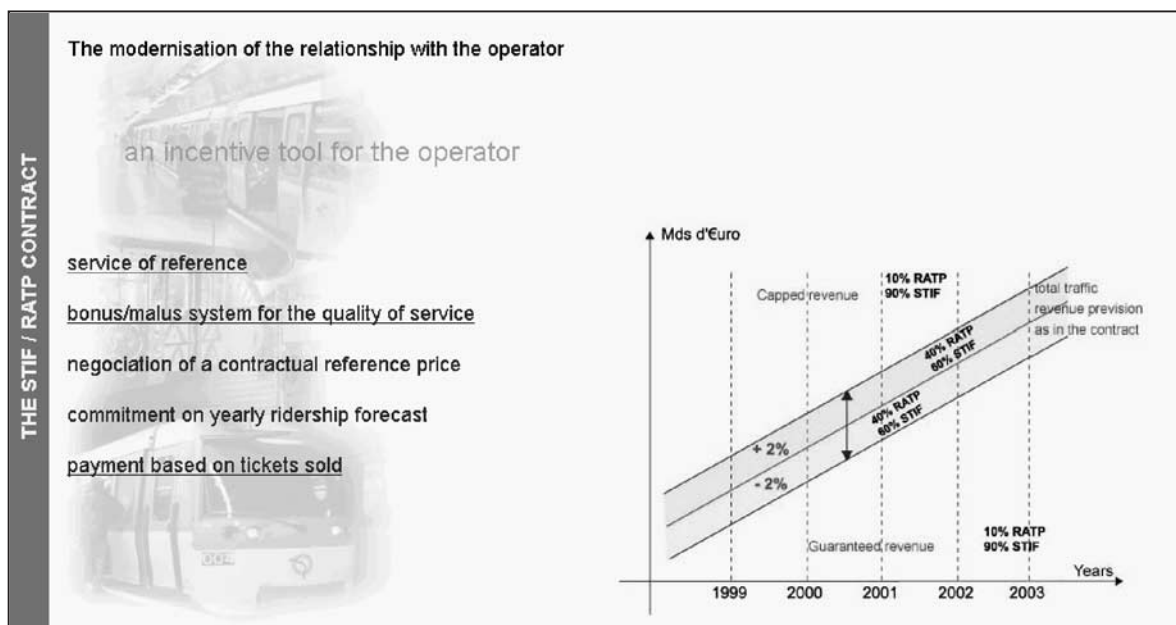
¹⁴ Quote contained in the CD entitled, Groupe RATP 2002, copyright RATP 2002.

shall require operators to furnish competent authorities with the information necessary to monitor and evaluate their performance and the performance of the network as a whole.”¹⁵

The actual amount that STIF pays RATP is determined by three factors. First, the operating company is penalized if the agreed-upon volume of service is not provided. Second, a factor is included that reflects the number of tickets sold; with higher ticket sales, the payments to the public operating company increase, and with lower ticket sales, the payments decrease. As shown in Figure A.3, the payment between STIF and RATP can increase or decrease up to 2 percent based on this factor. A third incentive system allows for up to a 3-percent increase in funding for higher-ranking quality of service or up to a 3-percent decrease for poor service.

By way of example, in 2001 there was no incentive payment for amount of ticket sales; there was a set of bonus payments equal to 31 million Euros. That “profit” experienced by the public company was divided, with 9.3 million Euros distributed to the employees as profit sharing and 22.1 million Euros available at the discretion of the management for development activities.

Figure A.3 Ticket Sales: Volume Factor Determines Payment



¹⁵ Major Metropolises Group of Public Transport Undertakings, May 13, 2002, “Proposed Amendments to the Amended Proposal for a Regulation of the European Parliament and of the Council on Action by the Member States Concerning Public Service Requirements and the Award of Public Service Contracts in Passenger Public Transport by Rail, Road and Inland Waterway.”

Note that the public authority determines the entire fare structure and that the public operating company is not free to alter the fares or policies toward special subsidies for special groups. Further, the operating company has no say in determining the amount of service provided; this, too, is the realm of the public authority.

In the view of its management, RAPT has restructured itself from its initial role as an unregulated public monopoly to its new role as an operating company that must produce a product well and that is held accountable if it does not satisfactorily produce that product. Notably, the same national legislation that recreated RATP as an operating company to produce a competitive product in Paris establishes the right of RATP to function as an operating company in French cities outside of Paris and allows the formation of an international company to compete for services outside of France.

The Unresolved Issue of Inner-Region Bus Lines

The future role of the publicly owned operating companies in directly providing bus services (i.e., without first offering a competitive bid) has not been resolved. In terms of bus routes, there is little debate about whether the suburban operations—bus networks and routes that are clearly separable from the “integrated complex networks”—should be put out for competitive bidding. As a result of the bidding process, the winning operator could be either a privately owned or publicly owned company.

More contentious is the issue of buses that directly serve the core transit network. A working paper of a group of major metro-area transit companies argues for a separate status for

bus networks that are an integral part of a complex, multimodal urban network, generally at the heart of major urban conurbations—for which specific measures need to be adopted to ensure coordination to achieve the most cost-effective use of resources, [to ensure] the rationalization of transport services, and, in particular, to avoid bus networks developing in a manner detrimental to urban rail networks.¹⁶

Sensitive to the variety of strategies appropriate in various cities, the paper notes that one way to achieve the above-mentioned separate status is with strict control, “where the authority wishes to coordinate matters itself by using its power to specify the service in some detail”¹⁷ followed by an open competition for operators, which mirrors the London Bus experience.

In addition, the paper argues for the flexibility to delegate “to an operator under its direct control and to which it also wished to entrust integrated rail network operations using the ‘control + challenge mechanism.’”¹⁸ In short, the public operators want the flexibility to operate the feeder bus services themselves, if they so choose.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Ibid.

Three Major Models for Structuring Local Transportation Organizations

With the issue of public management of rail systems resolved and the principle of open competition established for suburban bus operations, there are basically three models for the local transportation organizations left for discussion.

In the first model, open, onstreet competition for bus service is allowed. The public organization has a major say in the strategic policy setting but little to say about routes and schedules and no role in operations. The private sector provides both the operational level and the tactical level for most of the services. At the strategic level, a regional public organization has the job of reviewing (but not modifying) the services offered by the private-sector service providers and identifying gaps in mobility provision. The public body can then define the socially desired services to augment the result of the free-ranging private competition and provide a subsidy needed to entice private-sector providers to respond to tenders for these extra routes. This is the most radical model in terms of a minimized role for the public sector in making tactical decisions. This model is in operation in the United Kingdom, not including London, and is legal under present EU regulations.

In the second model, the public sector sets the overall policy, controls the design of routes and schedules and fares, but has little to no role in the operation of the buses. In this model, a strong public-sector role is played both in the strategic layer of the model and in the tactical layer. London is the most fully developed example of this model, with the emerging development of a system of publicly awarded incentives and disincentives to the private operators. Overall strategic direction is totally public, and the tactical level is totally public: the design and specification of every bus line is done by public employees working for Transport for London. Then, at the operational level, virtually all bus service provision is undertaken by the private sector. This model is in operation in London and Rome and is legal under present EU regulations.

In the third model, the public runs the strategic level and the tactical level and runs buses that the public considers necessary for public good. Where the operation of the buses are integrally interdependent with the operations of the rail system, buses are operated by the public company. In the geographic area where the operations of the buses are seen as independent of the operations of the regional rail system, the bus lines are put out for bid, where the private companies compete directly against the public company for the right to provide the service. This is the model that the EU has not yet approved.

Conclusion: Organizational Structure Change

Within the past 2 years, major issues have been resolved concerning the delicate balance between the desire to have open, free-market, transnational competition for all transit operating companies and the need to keep highly integrated systems under unified management. Other issues are still to be resolved. But it can be observed that a major evolution is occurring away from the lack of accountability that was associated with the historic public monopoly transit organizations toward an organizational structure in which the performance of all operators is subject to the political process. The concurrent desire to have a wide variety of service provision arrangements, while presenting a unified package to the

individual consumer, is at the base of the New Paradigms project developed in North America and is a central theme in the development of mandated organizational structure in the EU. These European developments are now reviewed in terms of the other dimensions of change documented in the New Paradigms project.

■ **Mission Shift**

As noted earlier in this text, the formal rationale for major institutional structural change discussed in the previous section was driven largely by the need for the transit industry to comply with overarching legislation concerning the principles of free-market competition across national boundaries in the newly developing European Union (EU). At the same time, however, the transit industry's reaction to the competition requirements was very much influenced and motivated by its desire to improve the quality and variety of services. Looking at the developments in the evolution of service concepts throughout Europe, a visible shift can be observed away from the fixation on service provision by the exclusive assets of the agency and toward the provision of mobility strategies, using multiple service providing partners. "Mission shift"—identified in the New Paradigms project as a fundamental dimension of change—is readily documentable in the recent European experience.

Mission Shift Outside of the EU Regulations

Proof that the mission shift away from direct modal service provision toward mobility management can be motivated by factors beyond the need to comply with a competition-based legislative mandate can be found in Switzerland. Importantly, Switzerland is not a member of the EU and has no intention of becoming one. But the Swiss have adopted policies that separate the functions of the mobility management agency from the companies that provide that service. Clearly, this example of "mission shift" is motivated by factors other than a need to submit to external legislative mandates, which were not relevant to decision makers in this case.

In Zurich, the long-existing multi-agency coordinating body (the Zurcher Verkehrsverbund, or ZVV) has been redefined as the key location for strategic direction in the development of a wide variety of mobility services. In Zurich, and throughout Switzerland, much of the task of providing urban bus service is being outsourced to private-sector operators. At the same time, the strategic body is becoming considerably more visible in the public's eye. The ZVV has undertaken a wide-ranging advertising campaign to explain to the public that, indeed, it is not primarily a company that focuses on any particular modal service. Figure A.4 shows aspects of an advertising campaign that highlights the concept that ZVV's separate modal services are interchangeable elements of a larger strategy to provide mobility.

The campaign to convince Zurich residents to purchase a 12-month mobility pass, as opposed to shorter-term passes, includes the advertising slogan, "ZVV—New: One pass for the tram, bus, rail, ship, and 1,750 autos!" Importantly, the mobility management agency provides highly subsidized entry into the local car-sharing system when a yearly pass is

Figure A.4 ZVV Advertising Campaign



"I am also a boat."



"I am also a bus."

purchased and does not provide the service with the monthly passes. All of this reveals the truly multimodal scope of the mobility strategy and the willingness of the agency to work with whatever service provision company is best fit to provide the specialized services. The 1,750 autos in car-sharing service in Zurich are owned and managed not by the ZVV, but by a company called Mobility CarSharing Switzerland.

The inclusion of car sharing in urban mobility strategies that was initiated in Zurich over the past two decades has been adopted and developed in several European cities, most notably in Bremen, Germany. There the mobility strategists working for the regional government were able to convince the transit agency to provide access to the car-sharing system for transit users who purchase the 12-month mobility pass. The "Bremer Card" is a smartcard whose computer chip both provides access to the transit services and actually unlocks the doors of the car-sharing vehicles. Managers in Bremen report a significant increase in the sale of the 12-month transit pass since the development of the multimodal multi-agency strategy.

Use of the Strategic Agencies for Multimodal Planning

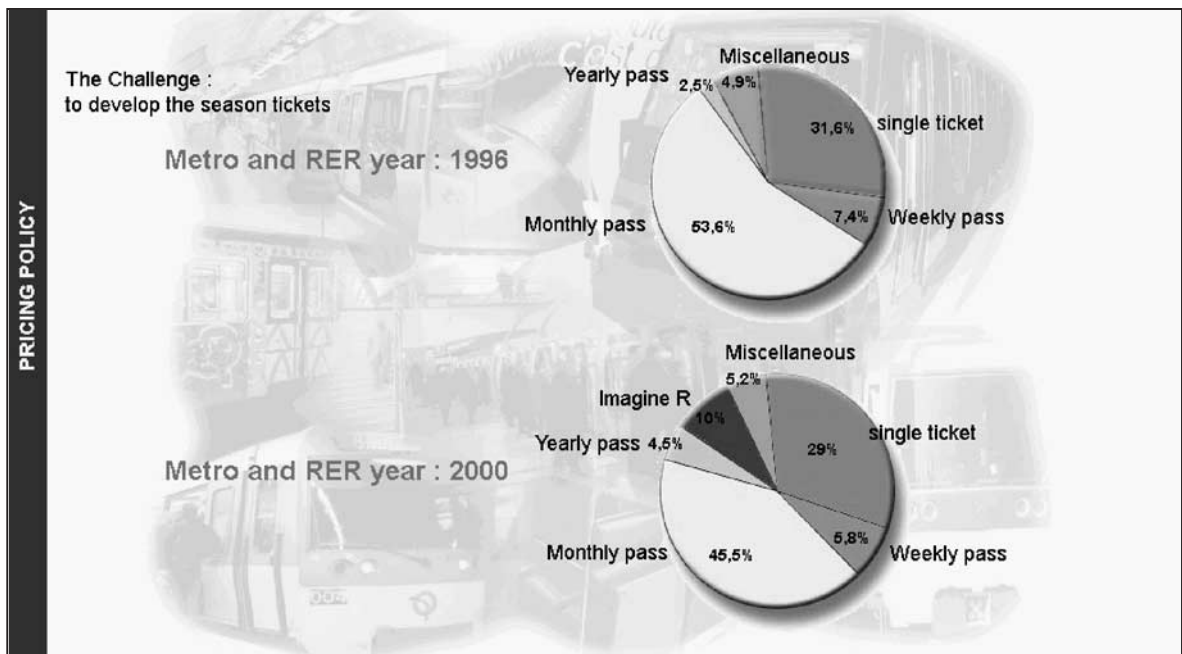
In Paris, the separation of the strategic policy agency from the providers of service has resulted in a newly effective organization for developing truly multimodal strategies for the region. At the STIF level, multimodal strategies are now being developed, with an emphasis on coordination between the modes and the various elements of infrastructure. That STIF plan calls for:

- A 3-percent decrease in auto traffic,
- A 2-percent increase in transit ridership,
- A 10-percent increase in walking,
- A 100-percent increase in bicycle trips, and
- A 3-percent increase in freight by nonroad modes.

Of particular relevance to the subject of mobility management is the proposed major increase in the role of walking and bike travel. STIF currently estimates that 34 percent of the region’s travel is by walking, with about 12.6 million daily trips, versus 66 percent by motorized conveyance, or about 24.4 million daily trips. A comprehensive strategy of mobility management must deal with nonmotorized travel, often not a major priority for transit operating companies.

This is also seen in the conscious strategy of the RATP to increase the duration of the transit passes that are sold. The purchase of the “12 pass” represents a commitment between the agency and the customer for mobility above and beyond the work trip. Between 1996 and 2000, RATP has tried to decrease the use of the single ticket and increase the overall duration-of-coverage periods for passes. The highly innovative student pass (called the Imagine R), for example, has its price based on the number of zones used in the daily trip to school, but on weekends provides access to the entire system. Together, the 12-month student pass and the yearly pass account for 14.5 percent of sales, in comparison with the yearly passes’ share of only 2.5 percent in 1996.

Figure A.5 Pricing Policy: Sales of Transit Passes



This emphasis on providing services above and beyond the peak-hour work trip is a good example of the migration toward mobility management. A major development project within RATP is the Microbus project, which is designed to operate *within* neighborhoods rather than in support of longer-distance travel.

Conclusion: Mission Shift

Given that the new rules mandating the structure of European local transit organizations are just now being developed, it is unwise to make sweeping generalizations about the impact of these new structures on the strategic philosophy of the newly restructured agencies. However, it is clear that the creation of new, overarching multimodal agencies is consistent with the mission shift observed in the New Paradigms project. The sweeping powers given to Transport for London (TfL) make it possible for one agency to deal with existing strategies, such as signal priorities for buses, and to go into entirely new strategic areas, including congestion-based roadway pricing, to be undertaken this year. Similar to the experience on the continent, TfL is cooperating in the development of a local car-sharing program. TfL is currently undertaking market research concerning the nature of service provision needed to support Londoners with a lowered level of auto ownership.

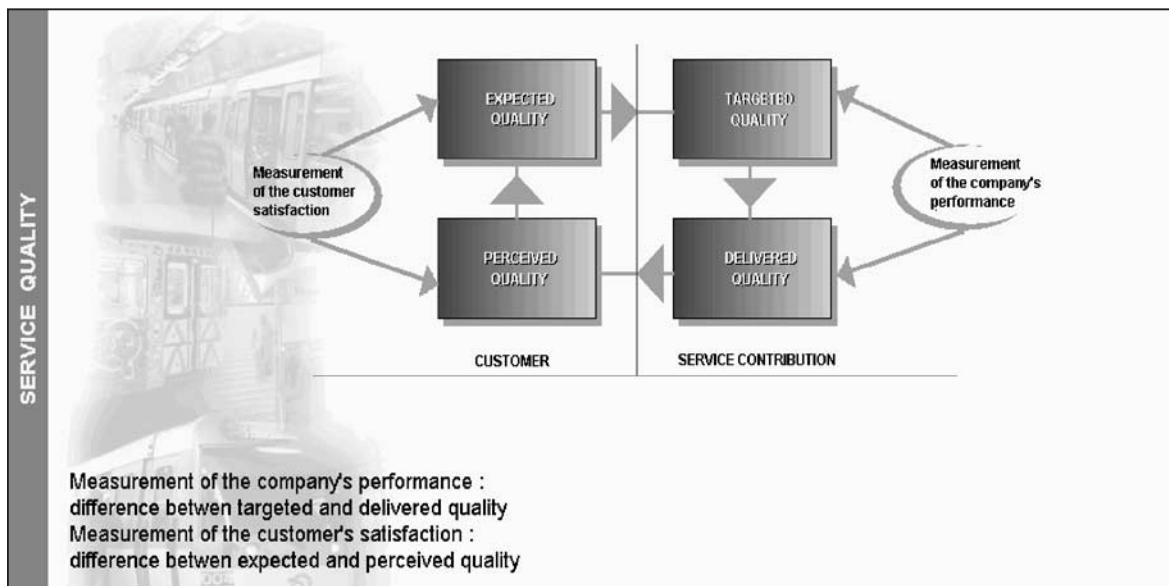
The specific role of STIF as the overall mobility strategist for greater Paris is just beginning to evolve. But, clearly, the creation of multimodal organizations with overall responsibility for equitably choosing between and among the services of separate operators represents a major milestone in the mission shift away from immediately provided services toward a wider vision of mobility management. The efforts of the Zurich's ZVV to redefine itself in the market as the organizer of mobility, rather than the provider of service, can be seen as the "poster child" for this mission shift.

■ **Customer Focus**

In the initial development of the New Paradigms project, a major lesson was noted from the freight industry. In a study of the United Parcel Service (UPS), one performance measure for efficiency of the system is the quality of the products. A second performance measure, different in nature, documents the experience of the customer. Figure A.6 summarizes the RATP program evaluation using these two performance measures.

In a manner highly similar to the application of performance measurement documented earlier in the New Paradigms project, Figure A.6 shows how the measurement of the company's performance is undertaken separately from the measurement of customer satisfaction. Earlier work in the project showed how London Transport Bus could apply information technology to document how well it was supplying service, while its Mystery Shopper Survey documented the experience of the customer. The RATP diagram shown here notes that the measurement of the company's performance is calculated as the difference between targeted and delivered quality. The measurement of the experience of the customer is defined as the difference between expected and perceived quality.

Figure A.6 Both the Efficiency of Production and the Experience of the User Are Measured



In the structure of the contract between the public mobility agency (STIF) and service provision agency (RATP), service is further evaluated in terms of several key milestones:

- Waiting time for trains,
- Service at station premises,
- Station cleanliness,
- Availability of ticket vending machines,
- Driver's behavior,
- Information at bus stop, and
- Commercial speed.

Conclusion: Customer Focus

The contract between the funding authority (STIF) and the public operating company (RATP) does not merely define the amount of service or just the efficiency of that service provision. Just as the managers at London Transport Bus are developing new forms of incentive-based performance measurements to improve the quality of service provided by privately owned operating companies, the STIF contract points the way for publicly held operating companies to be held to similar standards of customer focus. While it is perhaps too soon to evaluate the extent to which a large public body can be held accountable in such new ways, the structure for that evolution has been established.

■ Collaboration, Integration, and Use of Information Technology

Shifts in the structures of local transportation organizations in Europe, as discussed in the sections above concerning organizational change, mission shift, and customer focus, have at their base an increased reliance on the concepts of collaboration and integration of systems. From the bonds with car-sharing companies made by transit agencies in Zurich and Bremen to the development of incentive-based contracting at London Transport Bus, the emerging paradigm of mobility management is characterized by the existence of a strategic leadership body that can reach out to a variety of providers in a fair and unbiased manner.

In many ways, however, this reliance on multiagency cooperation and collaboration in Europe is mainly an extension of a pattern that has been building since the 1950s. In fact, the use of common ticketing, information, safety standards, and so forth over services that are provided by a wide variety of local organizations is the norm rather than the exception in the major metropolitan areas of Europe. The evolution toward mobility management is largely an extension of an operating philosophy of integration for the benefit of the passenger.

The evolution of STIF in Paris or ZVV in Zurich away from their origins as coordinating mechanisms between operators to their incipient roles as designers and enforcers of multimodal strategies is, for the most part, not visible to the consumer of transit services. The reality that one monthly pass, based on the number of zones experienced in the work trip, would work on a privately operated feeder bus, a state-owned national railway's commuter train, and a local city's tram is already accepted and assumed by the customer. The newly assertive role of the mobility agency in improving those services, and holding those operators to tough measures of performance, may or may not be perceived by the traveler. As the movement grows, however, the forays of the new mobility organizations into such innovative areas as car sharing and congestion pricing may well elevate the visibility and understanding of the new mobility organizations' relevance and importance.

In terms of the elements of new technology that will make this collaboration and integration possible, the rider needs to (1) plan the often complex, multi-segment trip; (2) pay for all of the segments of that trip; and (3) benefit from coordinated dispatching, timing, and implementation of those segments. In each of these areas, technology is being developed and adapted to harness the power of the many service-providing elements into a seamless experience for the benefit of the user.

In terms of itinerary trip planning within a given agency, the U.S. experience is about as advanced as that in major European cities. Most major U.S. transit agencies have trip-planning capabilities for the services they themselves provide. In terms of trip planning beyond the home-based metropolitan area and the integration of information describing the services of many companies, the European experience is far ahead of the U.S. experience.

In terms of integrated electronic payment systems, the major European cities have implementation schedules for advanced smartcard payment systems that are very similar in nature to the timetables for multimodal, multiagency implementation in pioneering U.S. cities such as San Francisco/Bay Area and Washington, D.C. Many cities in Europe are in the process of beta-testing the applications, similar to the U.S. leaders.

An interesting example of the kind of service integration through technology that must support the new combined mobility strategies can be found on the web site of the Bremen light rail agency. At this site, the customer can use the itinerary trip-planning system to gain access to all of the car-sharing locations in the city. In addition, taxis with specialty service offerings are also available on the web site hosted by the transit agency.

Conclusion: Collaboration, Integration, and Use of Information Technology

The major European cities currently benefit from the fruits of several decades of tradition in collaboration and integration across agency boundaries. For this reason, the restructuring of local transportation organizations now underway in the EU can best be seen as an extension of a pattern that has been established over the last few decades. Nevertheless, the evolution toward a vision of mobility management that is based on the needs of the user, and not on the needs of the service supplier, is being supported by the imposition of the new regulations on the older organizational structures. If all goes as planned, the new structures should quicken the pace of development of the new programs.

Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
U.S.DOT	United States Department of Transportation