

COMMON SENSE PARADIGMS FOR PUBLIC TRANSPORTATION

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According to the latest management journals and pages in the business section of the local newspaper, downsizing, outsourcing, and reengineering are sweeping corporate America. Chief executive officers report these efforts are saving their companies from a financial collapse as a result of intense competition. Although the public transportation industry would appear to be removed from the struggles of the private marketplace, it, too, has become entangled in the economic reform occurring throughout U.S. industry and government.

Public transportation has made both economic and social contributions to American society, but perceptions about the value of these contributions differ. Liberals strongly support transit as an instrument to provide mobility to economically deprived citizens, to mitigate some environmental problems, and to assist in the transformation of urbanized areas into livable communities. Conversely, conservatives view public transportation as a government creation, with such a creation's inherent inefficiencies, that is unable to effectively compete in a free market and thus unable to expand to benefit all citizens. Although both perspectives have merit and deserve equal consideration in fostering workable

solutions, the issue at hand is what must be done to unite Americans, both liberals and conservatives, in support of public transportation and to identify the niche in which it can best perform and prosper.

Transit advocates must accept the reality that the popularity of public transportation in America peaked about half a century ago. Today only about 2 to 3 percent of all travel in the United States is made by some mode of mass transit. But if transit opponents believe the industry should be abandoned to survive in a free market, they should take into careful consideration all of the middle- and high-income riders who regularly use commuter trains and other mass transit systems in principally urbanized areas of the country. In major U.S. cities, from 40 to 80 percent of all commuters reach downtown areas via transit.

While the facts about transit are important, perceptions are what really matter. "Value-for-the-dollar" surveys conducted in 1994 by The Conference Board, widely known for its consumer confidence surveys, reveal that Americans place a lower value on mass transit than on cars. The 6,500 participating U.S. households rated mass transit 41 on a scale of 0 to 100; U.S. and foreign cars were rated 48. If public transportation is to be effective, the public's perception of that industry—"empty" buses, inefficient bureaucratic organizations, service only for "minorities and the poor," and tax dollar drain—must change. Accordingly, the quality of public transit's service for the dollar must improve. To better understand what this may require, it is useful to review five areas that should be considered in any discussion of public transportation's future: the travel market, customers, technology, government, and transit industry workers.

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TRAVEL MARKET

About one-third of all U.S. transit ridership takes place in the New York/urbanized northeastern New Jersey area, and all but one-third of transit ridership is concentrated in the seven large urbanized areas of the country. Between 1983 and 1990, the total number of person-trips made in large urban areas with rail service increased about 39 percent. During that same period, the number of transit person-trips declined 18 percent, resulting in a significant share loss in the total person-trip market of from 8.8 to 5.2 percent. Not only did public transportation lose market share to privately owned vehicles, but so did all other transportation modes, including walking. Of the 242 billion person-trips in small communities and urban areas in 1990, 87.2 percent were made in privately owned vehicles and 7.4 percent by walking (1).

Some notable aspects of the recent travel market include the significant growth in suburb-to-suburb commuting and the diverse trip patterns of proportionally greater numbers of women workers, who are making multiple-purpose trips by automobile. These travel trends of the 1980s and 1990s are creating a predicament for traditional forms of public transportation.

The public transportation industry primarily serves two markets. One market is disadvantaged people who cannot afford other means of transportation, are either too young or too old to operate an automobile, or are disabled. The second market is people who commute to and from work, generally in larger cities where traffic congestion is severe, the cost of other transport means is high, or both. This commuter market values transit service because it saves time and money. Nationally, the share in both of these traditional transit markets is declining.

To continue expending significant amounts of public dollars with the view that transit will capture an increasing number of American person-trips is to ignore both the travel trends of the last 50 years and reasonable demographic and behavioral forecasts. During the past several decades, the number of person-trips via privately owned vehicles has grown faster than the total number of person-trips and is likely to continue to do so into the foreseeable future. Since 1990 even people living below the poverty level have increasingly traveled as single occupants of vehicles.

The public transportation industry needs to focus its energies and resources on markets in which it can succeed. The industry cannot afford to expand into any area in the belief that its mere presence will create a viable transit market. Even if an

TABLE 1 Transit's Share of Person Trips in Seven Metropolitan Statistical Areas, 1990

New York	7.7%
Philadelphia	5.5%
Chicago	4.2%
Washington, D.C.	3.8%
San Francisco	3.5%
Boston	2.6%
Los Angeles	1.7%

SOURCE: COMSIS Corporation. *1990 Nationwide Personal Transportation Survey, Urban Travel Patterns*. Federal Highway Administration, U.S. Department of Transportation, June 1994.

expansion eventually succeeds, the payoff period is often so lengthy that capitalizing, operating, and maintaining the service is financially dubious.

CUSTOMERS

Counts of passenger boardings (unlinked trips) indicate that public transportation has a generally stable ridership. A sample review of transit survey findings generally reveals that passengers have been using transit for varying lengths of time and more or less than they did in previous years. These findings confirm that passengers and passenger trips "turn over" even though the counted number of passenger boardings remains relatively constant; that is, new passengers replace passengers who no longer use transit service.

If transit agencies were able to retain some or all of those departing passengers for longer periods of time through improved service quality and value, ridership would increase each year. The expected increase in total ridership can be assessed on the basis of the annual passenger-turnover rate and the annual percentage of passengers persuaded to continue using transit for an additional year (Figure 1). If, for example, a transit agency had an annual passenger-turnover rate of 6 percent and estimated that improvements in service quality might cause one-third of those passengers who annually leave the service to continue as transit customers for another year, the expected increase in ridership at the end of 5 years would be about 9 percent. Transit agencies with high passenger-turnover rates that adopt service-quality improve-

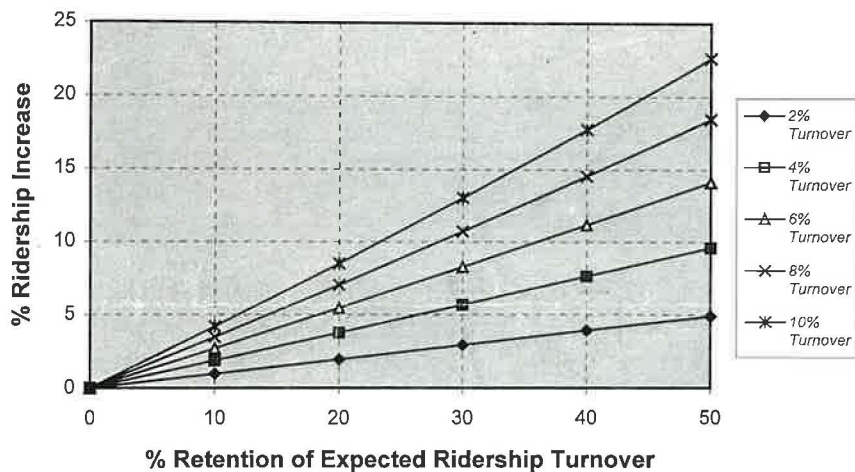


FIGURE 1 Expected ridership increase in 5 years.

ment programs resulting in high passenger-retention rates could expect significantly greater increases in ridership.

The catalog of public transportation modes and service methods is fairly extensive. Some modes and methods are effective and provide a good return on public investment; others do not. Transit leaders should carefully consider alternatives to making high capital investments and widely stretching physical service boundaries. Increasing customer use and retention through service quality improvements is more practical than searching for new customers in untenable markets. The former will require investments in services that provide increased value to customers.

TECHNOLOGY

Technology advances raise two important questions concerning public transportation. First, how will technology affect the lifestyles of the general public and thus its attitude toward the use of all travel modes? Second, how will the public transportation industry use technology to increase the efficiency and effectiveness of service delivery to reduce costs, attract passengers, or both?

Several decades ago, transportation researchers began to explore how improved communications might substitute for transportation and consequently reduce the number of trips made by the public. They concluded that communications would not significantly alter travel behavior and patterns. Obviously they did not foresee the proliferation of personal computers and the emergence of the Internet/World Wide Web.

As America shifts from an industrial society to an information or knowledge society, we are beginning

to see how the use of advanced technology will reduce work, shopping, and recreational travel. Even as jobs in heavy industry and factories are lost overseas or reduced because of technology that improves worker productivity, new jobs are created in information and service industries. These new jobs are less concentrated than in factory sites and are located in edge cities and the suburbs. Increased telecommuting will reduce the need for travel both within and between urbanized areas of the country. Coupled with a significant increase in working women, whose diverse commute patterns include trips to child care and shopping locations, is the extensive growth of small and home businesses that are able to compete effectively in the information systems marketplace when supported by computer technology. Shopping trips will be reduced by technology that will enhance the ability of consumers to purchase clothing, food, and other goods using home-based personal computers. On-demand television will become more commonplace, reducing entertainment travel. Advanced technology will either reduce or more widely disperse travel.

Current and evolving technology could affect the delivery of transit service in several ways. Communications to drivers might be displayed on video screens. Information systems could be used by dispatchers to make important service decisions and efficient driver assignments. On-board vehicle computers could monitor and analyze the performance of vehicle systems in real time so that actions concerning impending service interruptions may be taken.

Technology has already affected the service provided to transit customers. "Smart" cards can be used to receive and account for complex fare payments. Intelligent transportation systems using the technology associated with global positioning systems will improve service reliability and security through knowledge and management of vehicle locations. Future technological innovations should allow transit customers to obtain information concerning the real-time schedule of transit vehicles, to schedule demand-response services, and to activate controls when their personal security is threatened.

The challenge is determining how technology will be used effectively in the future. The transit industry should avoid searching for problems for which advanced technology might be employed. Instead, problems should be identified and then technological solutions applied to enhance performance and thus increase the perceived value of service to customers.

GOVERNMENT

Conservatives generally believe that “mass transit is a government creation” and that “dependence on public funds has made transit systems inefficient” (2). After elected officials began directing many public transportation organizations in the 1970s, great sums of tax dollars were invested in capital and operating assistance, and service was extended to thinly populated areas. In some cases, the use of taxpayer dollars required that all parts of a political jurisdiction receive service, even when the market for service was small.

Although investment in new equipment and infrastructure has been politically acceptable, investment in operating assistance is thought to fuel labor inefficiencies. As Congress appropriates less operating assistance to public transportation, it softens such losses by changing the rules and thresholds of eligibility for capital assistance. As a result, state and local governments have to become increasingly responsible for operating assistance and less so for capital assistance. But no matter how expenditures are defined and programmed, they are still made with tax dollars. Flexible grant funding that allows the “business” of public transportation to make the most appropriate use of tax dollars, although not always politically palatable, would greatly simplify the game rules.

Other government actions lend themselves to inefficiencies in the provision of public transportation services. One such action is requiring the public transit industry to comply with the provisions of clean air legislation by converting to expensive alternate-fuel vehicles at a cost much higher than the level of funding provided for the task by government. Ironically, the level of pollutants emitted by old or new transit vehicles makes little difference in regional air quality; privately owned vehicles contribute the lion's share of mobile-source pollutants.

Compliance with the Americans with Disabilities Act (ADA) is also raising public transportation costs. All transit agencies receiving government funds must fully comply with the act by providing paratransit services for disabled persons that are equivalent to fixed-route services. In 1994 the average cost to provide demand-response transportation was \$11.73 per unlinked passenger trip (3). According to 34 percent of transit agencies directly operating demand-response services in that year, the cost was more than \$15 per passenger trip; the cost for 17 percent of the agencies was more than \$20 per passenger trip. In its “National Transit Summaries and Trends” report, issued in 1996 for the 1994 National Transit Database report year, the

Federal Transit Administration notes that 0.7 percent of all public transportation trips documented in 1994 (7.70 billion) were provided through demand-response services at a cost of 3.9 percent of all reported operating expenditures (\$16.32 billion). Although making public transportation available to disabled Americans is appropriate, no supplemental funding for doing so has accompanied ADA.

Many transit agency jobs have been created solely to manage and ensure compliance with government legislation and policies. Transit and its government partners must move away from bureaucratic processes and operate as a business for tomorrow “and not yesterday, pragmatic[ally] and not nostalgic[ally], realistically and not politically” (4).

Turning around any institution, whether a business, a labor union, a university, a hospital, or a government, requires three steps. First, things that do not work, have never worked, or have outlived their usefulness must be abandoned. Second, the focus should be on the things that do work. Third, the half-successes, or the half-failures, must be analyzed. “A turnaround requires abandoning whatever does not perform and doing more of whatever does perform” (5).

TRANSIT INDUSTRY WORKERS

In an effort to cut costs through service reduction or outsourcing, transit organizations are now downsizing their work forces. Through this practice, agencies lose experienced and talented employees and destroy commitment to the organization. Confronted by downsizing, many employees focus on keeping their jobs rather than on doing their best for customers. In short, downsizing creates an often less productive work force.

Transit management must consider alternatives to downsizing if efficiency and effectiveness are to be improved. The industry needs to invest in its people, not divest itself of them. It should begin by including the leadership of labor unions in its strategic and quality planning processes; sharing critical information with all employees about the agency's business and performance; and increasing training, learning, and empowerment so that employees become more effective and responsible contributors. Most of all, agencies must make a commitment to change their culture.

CONCLUSIONS

Transit leadership needs to contemplate the economic, political, social, and technological changes

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JOINT UNIVERSITY PROGRAM WINS FAA AWARD

The Federal Aviation Administration selected the Joint University Program (JUP) for Air Transportation to receive the agency's first Excellence in Aviation award. The new award recognizes the program, operated by a consortium of the Massachusetts Institute of Technology, Ohio University, and Princeton University, for 26 years of important aviation research and development efforts that have helped make the aviation industry more efficient and productive. JUP members receive research grants from funds contributed equally by the Federal Aviation Administration and the National Aeronautics and Space Administration (NASA). Each university's proposals are reviewed by the FAA and NASA. Research results are scrutinized by government and industry researchers in quarterly review conferences.

Through the Excellence in Aviation award, the FAA formally recognizes superior aviation-related research efforts and highlights their benefits. The competitive, nonmonetary award is presented annually to individuals or institutions whose past research benefits the aviation community today.

Roundabouts *continued from page 15*

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that are affecting the industry's performance. If the industry is to grow and prosper, greater consideration should be given to common sense business paradigms. Accordingly, the leadership should

- Focus on identifying transit's true market niche, not on persuading the general public to shift to transit because it is less costly or will benefit the environment.
- Concentrate on increasing ridership by building customer loyalty through value-added service improvements.
- Avoid searching for problems that might be addressed by advanced technology; instead identify transit performance problems and investigate the potential of technology for their solution.
- Work with government to remove bureaucratic barriers and simplify the game rules to allow more flexible use of total tax dollars to provide effective service.
- Emphasize those efforts that work and abandon those that do not.
- Lead the culture change of transit organizations by redefining the role of management and focusing on helping employees and customers to participate more fully in improving transit performance.

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