

THE APPLICATION OF MASS COMMUNICATION THEORY
TO THE OPERATIONS OF THE
TRANSIT INDUSTRY

By

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PREFACE

This study is concerned with the role of transit management in encouraging balanced transportation concepts within the American urban environment. The concept of public transportation is reviewed from a historical viewpoint and from the standpoint of potential for ending the virtual monopoly of the automobile in the realm of personal transportation. Specifically, it is suggested that a vigorous transit strategy will permit a community to relieve congestion, pollution, and the entire host of evils attendant to the automobile. This philosophy places a great deal of pressure upon the transit manager to provide services that will attract the public away from the private car. It is suggested herein that the theories of mass communications can provide a strategical framework within which the transit operator can rejuvenate an urban area's public transport systems.

The author is deeply indebted to a great many people. Certainly, without the constant guidance and assistance from my thesis adviser, Dr. Walter J. Ward, this study would not have been possible. Appreciation is also expressed to the other committee members, Dr. James W. Rhea and Lemuel D. Groom, for their assistance in the preparation of the final manuscript.

A special note of thanks is given to the two men around whom this study revolves, Joseph Armn and Fred Gilliam. Their dedication to their profession provided the initial inspiration for this study, and the author sincerely apologizes for not having the talent and ability to

adequately describe how these gentlemen revolutionized the transit industry. The words could not be found to accurately portray the admiration the author holds for these men.

Finally, special gratitude is expressed to my parents, whose constant interest in this project has a great deal to do with the fact that it was finished.

TABLE OF CONTENTS

Chapter	Page
I. A STATEMENT OF THE SITUATION	1
A Short History of the Transit Industry	1
The Response to Decline	4
The Decline of the Automobile	8
The Transit Comeback	11
The Development of "Balanced Transportation"	14
II. MAKING BALANCED TRANSPORTATION THEORIES	
OPERATIONAL: A MARKETING MODEL	21
The Rise of Transit Marketing	22
Modal Choice Research	24
The Lovelock Model	26
Managerial Implications of the Model	30
III. TOWARDS A MARKETING STRATEGY: PHILOSOPHICAL AND METHODOLOGICAL CONSIDERATIONS	34
General Considerations	34
A Case Study	39
Results and Conclusions	46
IV. TOWARDS A MARKETING STRATEGY: PHILOSOPHICAL AND METHODOLOGICAL CONSIDERATIONS CONTINUED	49
The Basic Ideology	49
Diffusion Theory	51
The Application of Diffusion to the MTA	53
Research Programs	56
The Results	61
V. CONCLUSIONS AND RECOMMENDATIONS	66
Governmental Policy	67
Transit Management	69
SELECTED BIBLIOGRAPHY	72
APPENDIX A. A STRATIFIED RANDOM PASSENGER COUNT	76
APPENDIX B. THE MTA PASSENGER SURVEY QUESTIONNAIRE	80

LIST OF TABLES

Table	Page
I. MTA Mileage and Passenger Statistics, 1968-71	40
II. Survey Strata Returns	78
III. Statistical Analysis of Passenger Survey	79

LIST OF FIGURES

Figure	Page
1. The Lovelock Model of Transportation Mode Choice	29
2. MTA Passenger Count Form Used with Stratified Procedure	77

CHAPTER I

A STATEMENT OF THE SITUATION

Air pollution, traffic safety, congestion, land use, fuel consumption, balanced growth--the list of problems, both real and potential, affecting America's urban dweller is varied and growing. Yet all these issues invariably are linked to some degree to one increasingly important variable in the urban environment: transportation. The realization that the automobile no longer can be allowed complete dominance over an area's transport alternatives has been gaining acceptance in many cities.

This growing tendency to re-examine the place of the private car in society has created a "renaissance" within the public transportation industry. The capabilities of mass transit services to assist in the attainment of a community's transportation goals are often obvious and desirable, but the creation of a viable transit mode has been a difficult task in many areas. These difficulties suggest an examination of the traditions, history, and goals of the mass transit industry.

A Short History of the Transit Industry

The American transit industry was born in 1827 when Abraham Brower commissioned the construction of a modified horse-drawn stagecoach. This vehicle was operated by Brower up and down Broadway in New York City and picked up passengers at the flat rate of a shilling a head.¹ The route was an immediate success, and Brower expanded his service with larger

coaches he called "omnibuses." Success of the Broadway run led to the creation of a competitive industry in New York and the spread of the transit idea to Philadelphia, Boston, and Baltimore.²

Brower's immensely popular efforts in New York soon resulted in a young, dynamic industry which attracted America's entrepreneurs. Eventually, the Broadway run in New York became so crowded that omnibuses rolled up and down the street at fifteen-second intervals. Competition for passengers was keen, and drivers steered wildly in the race for fare-paying customers.³

This early experience led to a belief that excessive competition was wasteful. The industry began to accept municipal regulation in return for exclusive route franchises. Thus, mass transit began to serve two masters: private interests seeking high profits, and the municipal government seeking operation in the public interest.⁴ In future years, the public's interest would grow to be, in many instances, incompatible with the desire for profit.

But in the late 1800's transit was a prosperous enterprise, and American technology soon freed the operator from the horse-drawn carriage. In 1888, Frank Sprague started the first trolley line, an invention which closely followed the cable car. The electrically drawn trolley became the symbol of the industry until the motor bus became popular in the 1930's. Trolley lines sprang up in nearly every American city.⁵

The first quarter of the twentieth century saw good years for transit. The trolley routes were new, and young men eagerly sought careers in the growing and vital public transportation industry. Traffic grew, and subway lines began in New York, Chicago, Philadelphia, and Boston. Rail rapid transit became the talk of nearly every major American city.⁶

The success of these years covered and left hidden a base that was

never really sound. Technology had been the key to past successes, bringing about cable cars and electric trolleys. Though these inventions captured the public's imagination, problems caused by low fares and high taxes remained. The result was the wide-spread merger of transit companies into single lines. Municipal governments and regulatory bodies turned deaf ears to industry problems, forcing low fare structures and inventing an endless progression of taxes and fees.⁷

The depression affected the transit industry as it did every segment of the American economy. By 1933, the combined effects of the depression and the growing popularity of the automobile slashed annual transit patronage from a high of 17.2 billion passengers in 1927 to 11.3 billion in 1933. Dwindling profits prohibited new equipment, and many companies went into bankruptcy. A new trend toward public ownership, originally stimulated by public cries of poor management, was accelerated but confined to large urban areas.⁸

The Second World War reversed transit's downward trends as the wartime austerity curbed use of the automobile. An incredible 23 billion passengers crowded aboard the nation's transit systems in 1946.⁹ Ironically, the crush of new passengers served to weaken many systems. The low rates of fare still made modernization impossible. Wartime needs delayed delivery of new equipment even when it could be purchased. The millions of passengers crowding on already outmoded equipment left the industry with worn-down systems.¹⁰

The postwar situation brought about a conversion to a new type of transit vehicle--the motor bus. Such vehicles had been the object of experiments for many years, but widespread usage had not been achieved until the mid-thirties.¹¹ By 1940, the bus was enjoying increasing popularity.¹²

In the eyes of many observers, the abandonment of the old street-cars and trolley lines prevented the postwar financial collapse of the transit industry. Lewis Schneider has written:

Almost overnight, an industry with high fixed costs of maintenance of way, generation of power, and, in some cases, engineering and construction of rolling stock, found itself buying standardized products from a limited group of manufacturers, as well as relieved of the problem of maintenance of way.¹³

In 1945, the transit industry had \$1,570 million invested in street railways and \$566 million in motor buses. By 1962, \$229 million transit dollars were in street railways with \$854 million in buses.¹⁴ Only 44 trolley coaches were purchased by the industry following 1952.¹⁵

The one-man motor bus prompted savings, as it replaced the two-man trolley. Moreover, routes became flexible and could follow population trends into the suburbs. Express service became financially possible, and parts inventories were reduced and standardized. But these savings soon were offset by soaring labor costs and declining traffic. The decline in patronage was severe, and total ridership in 1953 was lower than in the depression year of 1933.¹⁶ Transit's future was highly doubtful:

Thus, as transit entered the 1960's the industry had come the full cycle, from technological development and growth under free enterprise, through maturity and some degree of complacency when first threatened by the automobile, to a secular declining demand for its product and financial uncertainty.¹⁷

The Response to Decline

Decline of the transit industry was paralleled by the increasing popularity of private transportation, most notably the automobile. Postwar automobile usage in America soared, with correspondingly immense drops

in public transport activity. The automobile, in the eyes of many, tapped some mysterious sociological base in Americans. Demand for private mobility grew until it outstripped the nation's street and highway systems and led the federal government to create an interstate highway program and to offer grants to local and state governments for highway construction.

Remarkably, transit managers themselves fell prey to the marketing approaches of the automobile manufacturers. Believing the march of the automobile was unstoppable, transit operators chose not to compete with the auto. They contented themselves with attempts to serve declining numbers of people who did not own an automobile or could not drive one. Styling the poor, the elderly, and the handicapped as their "captive riders," transit officials saw no need to improve service to become competitive with private modes.

Transit's non-competitive stance after World War II is not surprising when the nature of the product is considered. Unlike automobile manufacturers, transit operators cannot store their product or adjust production schedules to meet daily demand. To be effective, the service must be on the streets day in and day out, at precisely the same time. Moreover, simply putting the service on the road is a task of incredible size, as runs must be timed, scheduled, monitored, and adapted to an eight hour work day.¹⁸

In addition, while the motor bus solved many transit headaches, it was no panacea. It accommodated fewer people than a trolley and was liable to uncontrollable situations, such as traffic congestion.¹⁹ Traditional transit problems remained. Labor costs grew and accounted for sixty to seventy per cent of the transit revenue dollar.²⁰ A peak-hour

loading problem grew in dimensions, with as much as sixty-five per cent of the total traffic boarding during the peak times, requiring two to three times more equipment than during off-peak hours. In the old days of transit, when demand was constant, and inelastic, this problem was solved by stuffing people into trolley cars and even letting them hold on to the outside of the cars with hand-holds.²¹ But this policy was no longer viable in an era dominated by the comfortable private automobile.

As financial problems deepened, profits could be maintained only by cutting service and raising fares. Christopher Lovelock describes the situation thusly:

In . . . many cities, management's response to declining ticket sales was to cut back the number and frequency of service in an effort to improve load factors on those remaining as well as to raise fares in order to maintain revenues. Typically, this reduced patronage still further, and led to a vicious spiral whereby more and more people switched to their cars as public transport services became steadily less convenient and more costly.²²

The proliferation of numerous and fragmented carriers, a lack of marketing studies on the part of management, and generally low quality service conspired to continue transit's postwar declines.²³

Specifically, transit management could be faulted on two counts. First, the belief that transit demand was inelastic was held tenaciously despite the entry of the automobile into the market. Transit ideology was portrayed by the Simpson and Curtin Formula, which held that a passenger loss of one-third of one per cent would occur for each one per cent increase in fares over a period of three to twelve months.²⁴ The theory did not address itself to the results of fare decreases, and obviously was concerned with effects of fare increases on captive riders. The industry's acceptance of the hypothesized inelastic demand factor of .33 bound transit operators to an increasingly non-competitive model.

Second, transit officials increasingly excused their poor performance on external factors over which they felt they had no control. Citing such variables as population trends, changes in land-use, governmental policies, topography, changes in employment and work patterns, and the impact of the automobile, transit managers argued they had no voice in the transportation marketplace. All the variables involved in transit ridership were beyond their control, they argued, and there was nothing they could do about it.²⁵

Hiding behind these nearsighted theories of management, transit officials contented themselves with handling purely operational problems. Moreover, the movement toward higher fares and less service was continued. Between 1920 and 1960, cost of the average transit fare rose by a whopping 280 per cent. During the same period, cost of bread rose 7 per cent, and potatoes 10 per cent.²⁶ And, as service was cut to levels which did not serve adequately even the captive rider, the trend toward public takeover continued and increased. In many areas, public pressure forced the passage of legislation permitting the public takeover of even financially prosperous transit lines.²⁷

Hardest hit by the postwar transit decline were the companies operating in America's medium- and small-sized cities. As profits sank, many of these companies were forced to cease operations, and the movement toward public ownership was long held viable only in larger urban areas. By the early 1960's, the twelve largest transit companies, operating in the nation's most congested urban complexes, accounted for well over fifty per cent of the nation's total transit traffic.²⁸ Citizens of smaller towns and cities, less hampered by smog and traffic congestion, were forced to turn to their cars as transit alternatives became increasingly scarce

or non-existent. The decline of transit in smaller areas was a major reason behind the transit industry's first deficit year being posted in 1963. The deficit has grown larger ever since and totalled \$681 million in 1973.²⁹

The Decline of the Automobile

During the sixties, it became increasingly clear that only a massive public commitment would save the American transit industry from destruction. Luckily, such an effort appeared forthcoming, as the nation's love affair with the automobile was getting a little out of hand.

As automobiles increased at a rate three times greater than the national population, tremendous problems arose in the nation's urban areas.³⁰ An entire host of transportation-related problems became critical and could often be traced directly to the growing use of the automobile:

/The United States is/ facing a transportation crisis, one that becomes more critical as time goes on, a crisis which threatens to overwhelm us while we are standing around seeking solutions. Concurrently, we are facing a land-usage crisis as we face the task of accommodating an additional half-million people by the year 2000 in a landscape that has been shaped more to fill the needs of the automobile than to fit the needs of man.³¹

The cost of transportation had been growing steadily. Americans spend more than 20 per cent of the nation's gross national product just to move themselves and their goods.³² The average family spends more on travel and transportation than on housing or clothing. Only food consumes a larger share of the family budget.³³ The main component of this travel expense is the private automobile, as the cost of upkeep, maintenance, and operation moves steadily upwards.

Auto congestion has also become an increasingly irritating problem. Walter Oi and Paul Shuldiner have written:

There is little doubt that the problem of transporting persons and goods in our urban areas is one of the most frustrating our nation faces. We stand on the verge of enormous technological advances which will enable us to travel at supersonic speeds to distant planets. Yet, twice each twenty-four hours, millions of persons battle traffic congestion at speeds more reminiscent of pioneers in their covered wagons.³⁴

Other problems also reared up in the wake of the auto's popularity. Air pollution, perhaps the most ugly and most visible, became a key factor in the automobile's fall from grace, but was a problem confined mainly to large urban areas. Less dramatic situations caused more serious problems in smaller areas.

"Motor vehicles have a monumental appetite for space--both when moving and when parked," according to Donald J. Curran. More and more of the urban environment has had to be chewed up and paved for the highways, parking lots, and streets necessary for auto travel. The nature of the problem is understood only when it is realized that one car takes up about as much space as an urban office.³⁶

In some areas, the auto's demand for space is immense. In Los Angeles, approximately one-third of the land is committed to auto parking and service activity, and fully two-thirds of the Central Business District is so committed.³⁷ Thus, America's cities are consumed with what has been termed the "transit paradox": transit (a mode that efficiently uses urban land) declines at a time when highways (inefficient users of urban land) are highly congested and when insufficient land is available for relief.³⁸

The automobile is also a voracious consumer of fuel--a resource of questionable supply.

. . . if the U.S. is to avoid massive economic depression, we must hold our auto consumption of oil to about 100 billion gallons per year, or about what we are burning in

1974. In order to hold this consumption level into the year 2000 and beyond, gasoline will either have to be rationed by the government or in the marketplace via ever-increasing prices.³⁹

A whole list of attendant urban problems have been traced to the family car. Unattractive commercial strips, for example, are a function of the automobile system.⁴⁰ The list of the defects of the automobile, in fact, often seems endless, but can be summarized into seven main areas: (1) low street safety; (2) tends to divide and encircle communities through highway and expressway construction; (3) immobilizes non-drivers; (4) creates congestion; (5) contributes to inefficient land usage; (6) increases all types of pollution; and, (7) generally increases the waste of precious resources.⁴¹

Moreover, the cost of the automobile system to the taxpayer is growing unrealistic, and the impossibility of constructing enough highways has been admitted. When the system of federally subsidized highway construction began, cost estimates failed to account for a number of items, such as the amount of tax dollars lost when land was publicly acquired for highways, the withdrawal of land from expansion areas, and the tendency of highways to grow obsolete very quickly.⁴²

Transit's peak-hour loading problem was soon mirrored on highways and expressways, and "it has been found that the peak to off-peak ratios on urban expressways tend to be in the range of 2.4 to 2.6 to 1."⁴³ This means highway construction had to be planned to meet rush hour demand, while the expensive layers of asphalt and concrete went practically unused during off-peak periods. Even the straight monetary cost of highways showed a tendency to rise to record levels, and the cost per mile of highway construction has gone as high as one hundred million dollars.⁴⁴

The realities of the public cost of the automobile led to a general

decline of highway philosophy in the federal government. Even those officials involved with the interstate highway program were forced to admit that costs outweighed the public benefits. Francis G. Turner, former Federal Highway Administrator, has stated:

It will not be financially possible, and even if it were, certainly not socially desirable, to provide all the highway facilities that would be needed in order to satisfy the peak period demands, especially in the large urban areas, for all the people that want to drive their automobiles.⁴⁵

The finances tell the story: between 1921 and 1964, more than \$199 billion was invested by federal, state, and local governments in highway construction. Only \$115 billion was recovered through user charges.⁴⁶ The deficit of the American transit industry has never even approached the \$1 billion mark during any year.

The Transit Comeback

As the automobile increasingly adopted the role of the environmental and sociological villain of the American urban scene, transit management began a regrouping. Determining that the political atmosphere was changing, the transit industry began to move for changes in governmental policies.

Changes were indeed due. The governmental decision-making process had long been acknowledged pro-auto and pro-highway. In fact, through its construction of highways and promotion of commuter programs, the federal government became a major contributor to the use of the automobile. Moreover, the urban expressway program was the recipient of strong lobbying support from the American Automobile Association and the Automobile Manufacturers Association.⁴⁷ The result was that highway projects were eligible for grants that would cover up to 90 per cent of the total costs,

while transit projects were eligible for nothing.⁴⁸

But transit had a cause and deserved a viable place in the urban environment. It held much potential in the search for solutions to every aspect of a city's transportation problems. The fact that for every fifty persons diverted to transit nearly thirty automobiles were removed from the traffic stream gave transit an appeal to the growing environmental activist groups.⁴⁹ In fact, a variety of transportation objectives could be related to transit, such as: (1) increased equality of access; (2) time savings for passengers; (3) savings on vehicular ownership and cost for passengers; (4) increased street safety; (5) operator benefits from an improved system; (6) increased benefits to non-transit travelers; (7) increased employment; (8) improved land-use planning; and, (9) less air pollution and less noise.⁵⁰

Moreover, the role of the captive rider began to be seen in a new light as the belief in the universality of the automobile was found to be mythical. As point of fact, population statistics revealed that the captive rider minority totaled nearly 26 per cent of the American population. By 1970, it was estimated that 4 of every 10 families with average income less than \$4,000 a year did not own a car. Many of the automobiles owned by the poor were found to be in unreliable condition.⁵¹

The results of ignoring transportation needs of the poor were found to be monumental. Lack of public transit often forced entry into car-pools, resulting in loss of flexibility needed to seek new employment. The result was labor shortages in suburbs while unemployment was rampant in urban ghettos.⁵² The impact of denying viable transportation services to all segments of the community became clear when the McCone Commission found inadequate public transportation to be a major cause of the 1967

Watts riots. The Commission stated:

. . . an important factor in the hostility underlying the Watts riot was the sense of isolation due to the inadequate transportation system right spand in the middle of the most motorized city in the United States. The isolation was pervasive, extending even to services intended to benefit the inhabitants of the area⁵³

With such an important story to tell, transit proponents soon found listeners. Federal policy was actually altered in 1964, with the passage of the Urban Mass Transportation Act (UMTA). The legislation made available federal capital assistance grants for up to two-thirds of the cost of new equipment and facilities.⁵⁴ And after 1965, the federal government required all federally funded transportation projects to conform to a comprehensive urban transportation plan, which considered both the automobile and mass transit.⁵⁵

The federal legislation made modernization possible for the first time since 1945, and was utilized by the industry's largest operations to rejuvenate their systems. But the plight of the smaller operations was often not assisted by the more understanding attitude of federal programs. Local governments still showed a high resistance to transit investment, especially in areas which had not adopted public ownership. Transit, after all, still was considered a private industry, despite the growing trend toward public takeover.

In addition, public officials could cite four reasons behind their resistance to transit investment: (1) transit investment is generally irreversible; (2) direct financial returns are limited (though indirect returns are substantial); (3) the absence of a continuing source of operating funds (the UMTA legislation provided funds only for capital purchase assistance, not operating subsidies); and, (4) facilities are interlocked, prohibiting technological change.⁵⁶

The Development of "Balanced Transportation"

Lacking in the urban governmental process was a method of involving transit in the local planning process. The automobile had been enshrined in local bureaucracies through the profession of the traffic engineer, and had been reinforced by urban planners brought up on the old pro-highway bias of the federal government. With the demand for transit reaching new highs, and the realization that public ownership was the only means of providing quality transit services, local governments were at a loss because no one within the bureaucracy knew anything about transit and few wanted to learn.

In a sense, transit was suffering from its history as a private concern. Always regulated on procedures such as fares and routes, urban officials had nonetheless ignored specific operational problems. More often than not, the trend toward setting general transit policy without understanding operations left many cities offering transit franchises that no one wanted.⁵⁷

As it became increasingly clear that nearly every city of substantial size needed at the very least transit lines which adequately served the needs of captive riders, many communities "bit the bullet" and adopted public ownership of transit facilities. But the traditional structure was usually maintained by creating transit authorities or districts set up to operate solely for the public good but totally independent of the regular governmental bureaucracy.

While such arrangements often exacerbated transit's traditional problem of being unable to participate in local planning processes, the independent stature also had many beneficial characteristics. It left the

transit manager to pursue policies in his own way, unrestricted by a local transportation bureaucracy clearly designed to move automobiles instead of buses. And more importantly, it left the transit manager an independent voice which was often used to promote a novel theory called "balanced transportation."

Transit proponents looking for a means of advancing their cause knew a way must be found to involve transit in local planning and policy-making procedures as the only viable procedure for securing the necessary operating environment and tax subsidies. They did this by utilizing the same language as the planners.

If we assume that the man-made environment is system-like, then we can agree that transportation is a sub-system. The transportation subsystem has certain functions which contribute to the efficacy of the ways in which we try to satisfy the needs and wants of contemporary urban man

We are becoming more and more aware that we can plan the transportation subsystem of the environment. Not only can we provide facilities and policies that alleviate problems, we can plan for transportation in such a way that we can affect other aspects of the environment to optimize the functions of the whole system. Transportation serves as a key to unlocking both the mysteries of man's urban world and solutions for improving it.⁵⁸

The attack also centered on the traditional cost-benefit approach long used by urban planners:

Normal market transactions accustom buyers to think only in terms of direct costs. However, this simple out-of-pocket kind of cost-benefit analysis can not be applied to public goods like transportation. This is the precise reason why most goods become public goods. In other words, it is the costs to the society in general and the benefits received by society in general that cast a public mantle over services like education, police protection, and fire protection. Transportation is much the same.⁵⁹

Transit had become a "darling" of environmental and social experts looking for a way of stopping the continued growth of the use of the auto-

mobile. What these proponents hammered home was that the planning process had been too one-sided, that it had lacked "balance" between the various modes of travel. According to Gerald M. Weiland:

All too often, transit and highways are treated as competing facilities instead of being complementary Highways and transit facilities are not competing for trips, they are complementary services and should be planned as such.⁶⁰

Transit proponents also pointed out that nearly every major policy-making decision of the past had been pro-automobile and anti-transit:

Urban officials support shopping centers by investing millions of dollars in wider feeder streets and elaborate traffic control systems. Why don't they invest less on "jitney" bus fleets which would cruise neighborhoods near the shopping centers to help eliminate the need for firing up the family car for a trip of less than 12 blocks.⁶¹

Transit managers, seeing that a viable means of gaining entrance to local planning processes had been discovered, rallied to the tune of "balanced transportation." They argued convincingly that extensive transit development would permit the public a choice of transportation modes. Only in this manner, it was argued, would it be possible to divert the public away from the private car.

What we are saying is that we want a transportation system that will allow us the greatest choice possible in the environment [A] system that does not prohibit pedestrian-oriented urban spaces; one that does not cut great swaths through neighborhoods (as with destructive expressways); one that offers, as much as possible, door-to-door transport; one that appropriately serves low-density residential areas, yet does not act as an irresponsible breeder of these developments; one that honors the dignity of man, both as a passenger and an inhabitant of the landscape through which the system is passing.⁶²

The point was hammered home by citing the implications of continuing to ignore transit:

The metropolitan area does not have an alternative to coordinated transportation planning, but the results cannot be recommended. In the United States, at least until recently, the alternative has generally been to rely on the automobile,

and to adjust transportation facilities to the needs of the automobile. Although this has made Americans the most mobile people on earth, it has given their cities a problem of almost unmanageable dimensions.⁶³

The adoption of "balanced transportation" theories presently stands almost complete throughout the United States. The logic and need for coordinated planning between modes has been accepted by urban planners who have often been maligned for the rise of the automobile and its attendant side-effects. Thus, by the mid-seventies, transit has achieved an entrance to local planning processes, and public ownership, with its tax subsidies, is continuing in popularity. The passage of federal legislation in November of 1974 permitting operating assistance grants directly reinforced transit's public utility philosophy.

It remains only to convince the public to leave their cars at home and use in their stead public transport alternatives. It is this management function which shall form the focus for the remainder of this study. Specifically, the application of modern marketing to transit operations will be discussed along with the viability of a consumer mode choice model. Next, basic marketing considerations will be reviewed and the preliminary consumer orientation efforts of a transit agency outlined. The study will then proceed to the development of more comprehensive theories for a marketing strategy and the case study of a single transit agency will be continued. The study will then evaluate the potential effectiveness of transit marketing strategies and make various recommendations.

FOOTNOTES

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- ⁵³Ibid., p. 7.
- ⁵⁴"Report on Joint Conference . . . ," pp. 354-355.
- ⁵⁵Schneider, p. 47.
- ⁵⁶James S. Gallagher, "What is Holding Back the Development of New Transit Systems?", Metropolitan (September/October, 1969), p. 17.
- ⁵⁷Walter S. Rainville, Jr., "A Student Looks at Transportation," Metropolitan (May/June, 1969), p. 22.
- ⁵⁸Anthony J. Catanese, ed., New Perspectives in Urban Transportation Research (Lexington, Mass., 1972), p. xvii.
- ⁵⁹Curran, p. 13.
- ⁶⁰Gerald M. Weiland, "Systems Analysis in the Urban Transportation Planning Process," New Perspectives in Urban Transportation Research, ed. Anthony J. Catanese (Lexington, Mass., 1972), pp. 16-17.
- ⁶¹"Mass Transit for Oklahoma . . . ," p. 34.
- ⁶²Stone, pp. 113-114.
- ⁶³"Planning for Mass Transit," Metropolitan (July/August, 1969), p.

CHAPTER II

MAKING BALANCED TRANSPORTATION THEORIES

OPERATIONAL: A MARKETING MODEL

It could be argued convincingly that, when the transit industry accepted and utilized the concept of balanced transportation planning, it did not fully realize the implications of the actions. As explained in Chapter I, the industry had responded to its postwar demise by a near universal acceptance of a subsidiary transportation role and emphasis on serving only the captive rider. Balanced transportation theories were utilized by most transit officials in their lobbying efforts to secure a stronger voice in all areas of government and to push for public ownership and operating subsidies. Again, transit management was guilty of nearsightedness.

The implication of balanced transportation planning was balanced transportation usage by the consumer. Obviously, it would do no good to build up transit services unless more people could be convinced to utilize them. And this meant luring people away from their cars. It was this aspect of balanced mode planning that captured the imagination of the environmentalists and the urban experts. To them, the multi-mode transportation system was a way of ending the complete dominance of the automobile and loosening its ever-tightening grip on America's cities.

What all this means is that the transit industry, through its acceptance of balanced planning models, was acknowledging and accepting a

more dynamic role in the transportation marketplace. Now transit had to compete against the automobile for passengers. It no longer could argue it was doing its job by serving the needy, the handicapped, the elderly, and those too young to drive. It was this impact of coordinated transportation planning that still is having disruptive effects throughout the industry.

The Rise of Transit Marketing

Transit clearly was, and still is, in a very poor position to adopt a vigorous competitive stance. Having originally adopted the ideal of balanced transportation solely as a means of changing the governmental policies that had plagued them for years, many transit managers resisted the idea that they must now compete actively against the automobile.

This resistance is understandable when the situation is clearly understood. The transit industry traditionally had been production oriented.¹ In addition, mass transit agencies had a history of poor product planning and an unwillingness to invest in market research and extensive promotion.²

The declining passenger counts and the trend to public ownership had all but ended transit's career appeal to the nation's young, and left the industry without a youthful, dynamic inner voice. The old-line transit manager resisted his new role simply because he had no experience in making his product competitive. The tendency to stand pat and be content with pushing for more changes in governmental policy was nearly universal within the industry until the early seventies.

The demand that transit operators enter the open marketplace was, in any case, unique in the transportation business. No other mode of transport has ever been forced to represent itself both in the public and

private sectors of the urban environment. The automobile, for example, is represented in the area planning and policy-making bodies by the traffic engineer and urban designers, and in the marketplace by auto manufacturers and their distributors. Of all the people involved in an area's transportation system, only the transit manager was being asked to both cooperate with other modes in planning a balanced transport system and to compete against other modes in the open marketplace. These two roles obviously hold potential conflict. Many managers chose to concentrate on one role to the exclusion of the other.

However, the public was often in no mood to listen to excuses. Having gone along with changes in governmental policy, and often having voted for the diversion of their tax dollars to transit projects, the citizenry demanded results. And what they wanted to see was more people leaving their cars at home and riding the bus.

The public had a point. "Unless public transit is well patronized, many of the benefits claimed for it will never be achieved," according to Christopher Lovelock, was an obvious answer to reluctant transit officials who clung to their old ways. A new era of beneficial government policy had been ushered in, and now it was time for transit to show what it could do.

Fortunately, there existed a management discipline that was adaptable to transit operations and which promised a bright future. The discipline was marketing--the same tool that made the automobile a national sex symbol.

While it is believed that government support for public transportation facilities greatly enhances the chance of success, . . . only a strong consumer orientation on the part of management at all states of design, planning and operation can achieve this success.⁴

Experts were quick to point out the adaptability of modern marketing principles to the doubting transit manager.

Marketing and advertising are indigenous to the American economy. And local transportation systems--whether public authorities or private firms which supervise and direct the operation of public transportation facilities--are increasingly aware of the need to research and analyze markets and to sell their own facilities (which they operate in the public interest, convenience, and necessity) in the same way that producers of other consumer goods and services do.⁵

The acceptance of transit services as a "consumer good," that could be marketed in precisely the same way as other products, has gradually spread throughout the transit industry. A few still cling to the belief that governmental policy is the key, and point out that more than 2000 years ago the vehicles of all but the most important citizens were banned from the congested streets in the center of crowded cities.⁶ But plans for restricting automobile usage by governmental policy have never gained public acceptance, and leave marketing as the only viable tool available to transit management for use in the marketplace.

Modal Choice Research

Of course, the transit product has its own set of characteristics which have been described by Lewis Schneider:

The critical difference between a transit and a manufacturing company is that the product is an elusive one. It can be produced at will but never stored, and it is known under various names: car miles, bus miles, or seat miles, depending on the technological configuration of the company and its standards of comfort Inasmuch as the demand for mass transit is confined largely to a few hours per week, and transit's product cannot be produced in advance and stored, it is clear that profitable operation is not easy.⁷

Fortunately, the discipline of marketing consists of a set of theories that are adaptable to all product forms. All that was needed was to determine the nature of the demand for public transportation. Researchers

were beginning to do just that.

It should be remembered that for many years it was believed even by transit officials that demand for automotive travel was based on a set of inherent sociological variables that could not be affected by the manipulation of the environment. People chose their cars over transit, it was felt, because it was "natural" to do so in the American culture. Several research efforts, indeed, had confirmed these theories.

Such findings prohibited the transit industry from utilizing marketing techniques, which rely on variable manipulation to achieve results. If automobile ridership was a natural phenomenon, it could not be affected by the actions of the competition. But more detailed and exhaustive studies were forthcoming and their results were extremely encouraging.

. . . theoretical considerations and the available empirical evidence suggest that vehicle ownership is clearly not an exogenous variable, especially over time. Indeed, the future urban transportation system may itself influence the level of car ownership to the extent that car ownership will be affected by such factors as (a) the family's travel demands, (b) the quality of transit services, (c) the adequacy of parking facilities and street capacities, (d) the developmental patterns of the city, etc.⁸

Moreover, research tended to show that the automobile's grip on the consumer was psychological, and was not so strong as to prevent a rational decision-making process on the part of the consumer. Lewis Schneider points out that:

. . . urban transportation studies have developed correlations which indicate that transit can attract substantial numbers of automobile drivers if it provides fast, comfortable and convenient service at low cost.⁹

Attitudinal surveys demonstrated that travel time, reliability, status, comfort, and cost are very important factors in travel mode selection.

Safety was also demonstrated to be an important variable.¹⁰ A survey conducted in the San Francisco Bay area in 1973 revealed that car travel was

not perceived by non-captive riders as universally superior to transit, that it was felt to be more dangerous, more expensive, and slower than certain forms of mass transit.¹¹

These findings were of immense importance. Variables such as speed, cost, safety, and reliability could be manipulated and, more importantly, the possibility of variable manipulation meant modern marketing techniques were adaptable to transit operations.

A similar research effort was to tie transportation demand to the economic theory of "derived demand." Research revealed that Americans rarely took trips for the sake of travel, that trips were usually taken to achieve a purpose, such as shopping, going to work, etc. "Transportation is a . . . a derived demand, and so the modal choice decision is preceded by the consumer's decision to make a journey which will satisfy other needs."¹² Discovery of the economic nature of travel permitted the utilization of the analytic techniques of economics.¹³ This, in turn, allowed usage of the tools of modern behavioral science in the creation of a model of the transportation mode decision-making process.

The Lovelock Model

"A market is an exchange relationship between buyers and sellers."¹⁴ This definition, devised for the economy in general, holds for the transportation marketplace. The discipline of marketing is designed to assist the seller in advancing the usage of his product. It encompasses the wide range of activities designed to bring markets into being and cause them to operate. Two distinct activities take place within a market: communication and exchange. Sellers are the primary active units, as they use communications to develop products and promotion programs that attempt

to anticipate the demands of the consumer.¹⁵

As modern marketing emphasizes an active role on the part of the seller, it becomes necessary for the transit manager, in adopting marketing practices, to shed traditional inelastic demand theories and enter the marketplace with vigorous consumer-oriented strategies. What must be realized is that marketing involves all aspects of operations, and necessitates adapting service, fare policies, equipment, routing, and all other activities on the basis of demand. This forces the adoption of communications systems with the consumer that will permit the precise determination of consumer desires.

Such communication channels are hard to establish for a diversified audience. "In short, management's task appears to be to plan and implement integrated marketing strategies keyed to the varying requirements of its customers," is how Lewis Schneider described the situation.¹⁶ Of key importance is the identification of target groups of potential users and then the effective marketing of services to these groups.¹⁷ This requires a massive effort to secure information on consumer demand, and the development of methods to interpret that information.

The primary component in this type of communication becomes a simple recognition and acceptance of the size of the audience and its varying demands:

While commonplace in the retail business, the transit market has rarely been viewed as a highly stratified phenomenon consisting of clearly discernible, distinct, and often widely different groups of users. However, by viewing it in this manner, the theory of transit user groups evolved that recognized the diversity of interests and corresponding composition of groups of persons who are, or who could become, transit patrons.¹⁸

This realization is the first step toward the acceptance of a model of consumer demand that will guide transit marketing policies. Such mo-

deling procedures are important for their ability to coordinate management activity, and also because they permit a systems approach which emphasizes the utilization of a variety of procedures and disciplines.¹⁹ Such a wide-range of approaches are necessary for a diversified audience.

The diversity of interests existing in the audience also suggests an approach that would emphasize the individual consumer, and modelling provides just such a framework.

A particular advantage of modelling from the perspective of transportation research is that the consumer behavior models integrate psychological and social-psychological variables, enabling one to examine the role of attitudes, perceptions, etc., in the modal choice decision process.²⁰

Christopher Lovelock has developed a model of consumer mode-choice that is acceptable both for its simplicity and its emphasis on the individual consumer. The model is shown in Figure 1.

As hypothesized by this model, each trip has a set of characteristics which affect the consumer's decision on the mode of transport. After the consumer has specified these characteristics, he goes on to evaluate his needs on the basis of his own personal characteristics, past experience, and values and attitudes.

Now the consumer can move on to a search and evaluation process. On the basis of his attitudes and past experience, the potential traveler searches the modal pool for the form of transportation which ideally meets his needs. It is important to note that not all forms of transportation are considered, but only those the consumer chooses to evaluate.

The consumer continues his evaluation of potential modes, and the key variable now becomes the amount of information in his possession about each method of transportation. He may choose to seek out additional information, permitting him to update his knowledge. But he may choose not

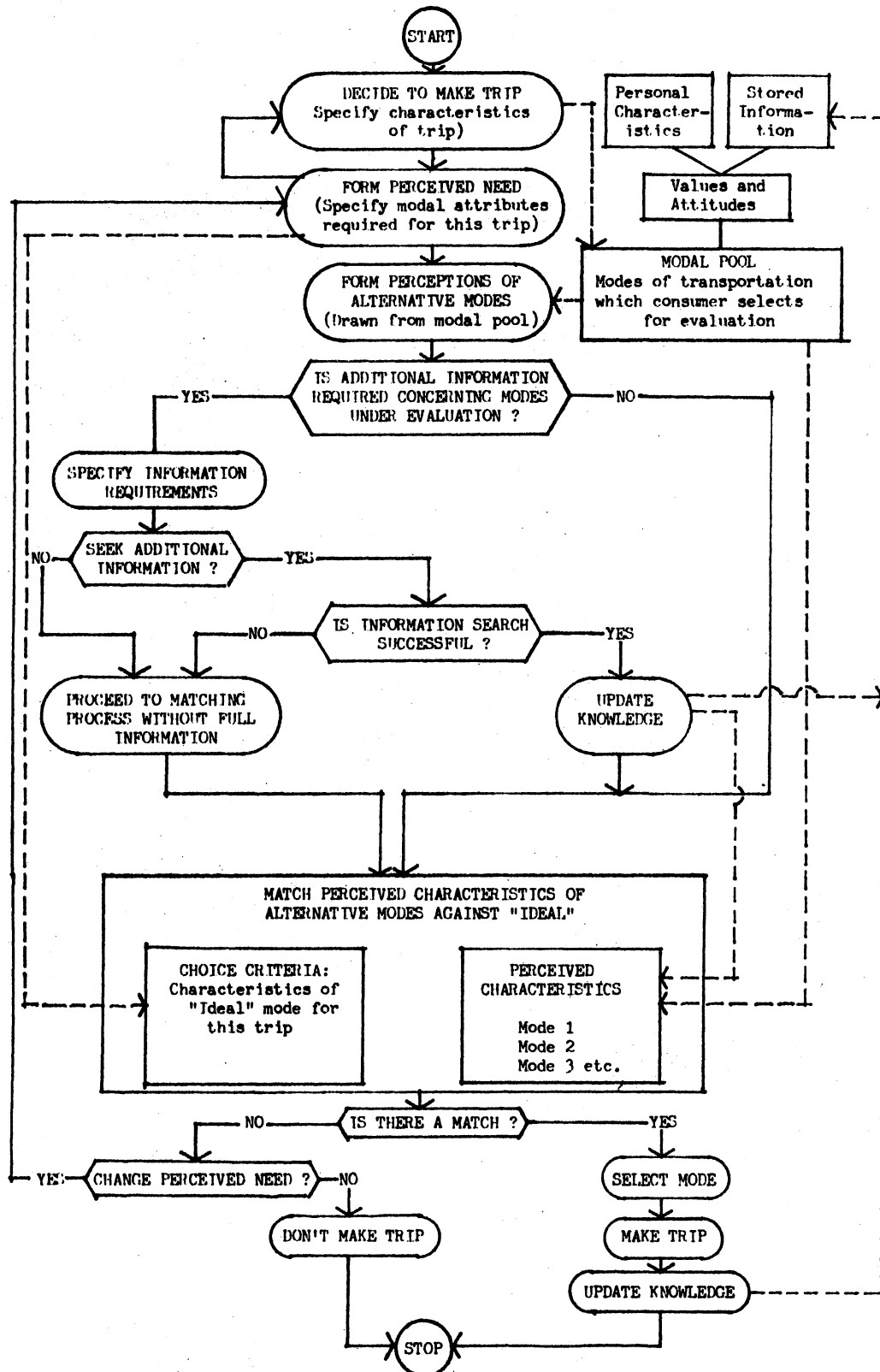


Figure 1. The Lovelock Model of Transportation Mode Choice

to seek additional inputs or be thwarted in the search, resulting in a high risk of not making the best decision.

A comparison process now occurs in which the consumer evaluates each mode in an attempt to match it to the "ideal" form created in his mind. If a match results, the consumer is expected to take the trip; if not, he can either decide to postpone the trip or change his perceived needs in hope of achieving a match. Such a re-evaluation of needs could take the form of modifying the ideal, altering the nature of the trip, or introducing new modes into the modal pool.²²

Managerial Implications of the Model

The Lovelock Model provides a viable framework for transit marketing strategy, defined as, "The set of pricing, market research, promotion, and product planning policies designed to stimulate the patronage of mass transit."²³ Clearly, all phases of transit operations are affected by the adoption of a marketing strategy, for all activities have an affect on consumer demand. The condition of equipment, the politeness of drivers, the method of responding to telephone information requests, the scheduling-- every policy established by a transit manager affects the values, attitudes, and knowledge of transit held by the public.

The model described above, then, requires a total marketing orientation on the part of management, and a reversal of traditional production-oriented philosophies. No longer can the profit and loss tally be permitted total dominance over transit policy, for the need to compete makes mandatory the determination and acknowledgment of consumer demand. Christopher Lovelock has written:

Before a person can use transit, he must know an alternative to the auto exists, and perceive transit's characteristics as

meeting his needs as well or better than the car. This means transit managers must find out what the consumers' needs are, design the system to be competitive with the auto, and then market the system in a way that consumers will know it exists and perceive it as competitive.²⁴

This approach emphasizes two management tasks. First, the personal characteristics of the consumer, his values, attitudes, and experience, must be altered to permit the inclusion of transit as a viable alternative to the private car. This involves a concentrated public relations program designed to upgrade the "image" of the transit system through the use of modern equipment, reliable schedules, graphics, and so on. Secondly, a multi-faceted information campaign must be prepared so as to permit the transit system to respond when the consumer seeks more knowledge in the decision-making process. Such informational materials should cover all aspects of utilizing the system.

This natural dichotomy of management functions provided by the Lovelock model can serve as a guide to the formulation of all management policies, from service planning to design of printed schedules. But the foundation for all marketing programs rests on a strategy formulation function designed to provide a communication channel with the public which will guide the manager to make decisions which conform, to the extent possible, to consumer demand. It is to assist in the creation of just such a strategy that the rest of this volume will concern itself.

FOOTNOTES

¹Lewis M. Schneider, Marketing Urban Mass Transit--A Comparative Study of Management Strategies (Boston, 1965), p. 33.

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⁴Ibid., p. 1.

⁵"Ridership Promotion in the Transit Industry," Metropolitan (September/October, 1969), p. 30.

⁶John Anderson Miller, Fares, Please! (New York, 1960), p. 194.

⁷Schneider, pp. 29-30.

⁸Walter Y. Oi and Paul W. Shuldiner, An Analysis of Urban Travel Demands (Evanston, Ill., 1962), p. 22.

⁹Schneider, p. 45.

¹⁰Rex J. Wallin and Paul H. Wright, "Factors Which Influence Modal Choice," Traffic Quarterly, XXVIII (1974), p. 288.

¹¹Lovelock, p. 234.

¹²Ibid., p. 50.

¹³Oi and Shuldiner, pp. 10-12.

¹⁴Lee E. Preston, Markets and Marketing, An Orientation (Glenview, Ill., 1970), p. 1.

¹⁵Ibid., pp. 1-9.

¹⁶Schneider, p. 178.

¹⁷Lovelock, pp. 13-14.

¹⁸W.G. Roseler, "Mode Preference Model," Traffic Quarterly, XXVIII (1974), p. 401.

¹⁹Gerald M. Weiland, "Systems Analysis in the Urban Transportation

Planning Process," New Perspectives in Urban Transportation Research, ed. Anthony J. Catanese (Lexington, Mass., 1972), p. 16.

²⁰Lovelock, p. 46.

²¹Ibid., p. 49.

²²Ibid., pp. 50-54.

²³Schneider, p. 6.

²⁴Lovelock, pp. 16-18.

CHAPTER III

TOWARDS A MARKETING STRATEGY: PHILOSOPHICAL AND METHODOLOGICAL CONSIDERATIONS

Adoption of the Lovelock model as a management tool by a transit agency should not be considered a light decision or easily accomplished task. The acceptance of the model requires a complete restructuring of the traditional transit philosophical structure. The belief that the automobile is a superior form of transportation that is somehow "fated" to prevail over public transit must be abandoned in favor of a marketing ideology which emphasizes transit management as the crucial factor in altering the basic travel habits of the public.¹

The first step toward implementing a marketing approach is the creation of a marketing strategy comprising a set of policies keyed to specific objectives.² It is the purpose of this chapter to begin to discuss the factors demanding concern in the creation of a marketing strategy by analyzing the approach of a single transit agency, the Metropolitan Tulsa Transit Authority.

General Considerations

Of basic importance is the realization that transit marketing requires an intense effort which finds few parallels in the marketplace. As Ray A. Mundy has written:

What some transit marketers have already discovered from trial and error is that their marketing strategy is not merely

persuading an individual to invest 35 cents and try it, but, rather, to change a segment of his or her very own life style.³

The overriding consideration is that the automobile, for a variety of reasons, has become a transportation institution in the United States. Any attempt to dislodge the auto from its position of superiority must be well planned and smoothly instituted. This fact makes marketing of crucial importance, as it is "the only management function which links directly the transit company and the general public--both riders and non-riders."⁴

The far-reaching nature of the transit goal of taking passengers away from the automobile requires a broad concept of marketing. In the words of Ray Mundy:

Of primary importance is the need for transit executives to broaden their concept of marketing and markets. Far too many transit executives are under the misconception that marketing means advertising and little else A marketing strategy involves product offerings, price, research, and delivery system decisions also.⁵

It is necessary, then, for the transit marketing strategy to be successful, to adopt the Lovelock model not only as an explanation for consumer behavior but also as the dominant theoretical basis for every management decision. The consumer becomes the dominant concern of the manager, overriding strictly operational concerns.

It may be hypothesized that, in terms of the consumer, the automobile is a superior alternative to the transit product in the attributes of privacy, comfort, orientation, and convenience.⁶ To these characteristics may be added the qualities of quick travel time, no waiting time, freedom from schedules, and reliability.⁷ Of course, not all these variables may enter into the mode-decision making process of an individual consumer, but one or more of these characteristics may form the basis of a transportation

modal choice on the part of a potential transit passenger.

In terms of the Lovelock model, it appears the all-important consumer function in the transit marketing strategy is the process of matching the characteristics of all available modes against the traveler's own conception of the "ideal" form. As transit is competing against the automobile in the mind of the consumer, the characteristics of each mode as perceived by the consumer become the predominant factor in the final choice of the form of transportation.

Purely economic considerations do not appear to be overwhelmingly important. From past behavior, it is known that "the consumer is perfectly willing to spend three, four, and even ten times as much money on a given functional product to achieve higher levels of performance, status, comfort or appearance."⁸

Since economics appears to be relatively unimportant, the key parameter for describing the transit product would appear to be speed, comfort, convenience, and safety.⁹ To these may be added the component of community concern:

Although the automobile is a remarkably useful mode, clearly it is not always the best or most appropriate mode, particularly when viewed from a community, rather than an individual, standpoint.¹⁰

The transit marketing goal is, then, to allow a traveler a choice of modes and to encourage the mode that is best for him and the community.¹¹ In many cases, a significant upgrading of existing transit services may be necessary to achieve equality on the modal attributes deemed important by the consumer.¹²

Marketing has been defined as "the process of matching consumer needs and the firm's resources."¹³ In order to achieve this goal, marketing strategies are usually outlined in terms of four variables--product de-

velopment, promotion, price, and distribution channels.¹⁴ A specific strategy combines or weights these elements in a way that will allow the firm to achieve its goals of profits, sales, and larger market share.¹⁵ The needs of transit marketing differ little from this general approach, though the specific requirements of this industry are often uncommon.

Transit marketing is unique in that there may be several alternative means to obtain a similar end, i.e. the "Marketing Mix" may have a variety of components and differential weights or emphasis.¹⁶

The task of the transit marketer is to define the goals of his agency and then blend the elements of the marketing mix in such a way that the attainment of these goals becomes possible.¹⁷ The main difficulty with this general paradigm is that the transit marketplace is composed of a wide variety of consumers.

In practice, . . . public transportation has to be designed to serve a large number of different market segments whose needs and characteristics may differ quite widely from one another.¹⁸

This means the transit manager must compose different strategies for each market segment. In other words, a different marketing mix may be required for each sub-group in the community.

These factors necessitate the identification and location of individual market segments. And, once the elements of the audience are defined, the transit marketer must establish a meaningful relationship with the consumer as a basis for a flow of influence.¹⁹ The words, pictures, numbers, and gestures that are accepted by each market segment must be discovered and utilized by a marketing communicator.²⁰

The considerations discussed above obviously point to the immense size of the transit marketing task. When combined with the traditional superiority of the operational function, the complexity of the require-

ments imposed by an adoption of marketing explains the discipline's slow rate of acceptance throughout the transit industry. Also explained, perhaps, is the general equation within the industry of marketing with the isolated task of promotion.

Such an attitude is dangerous because it permits no expansion of the management function and suggests a reliance on advertising agencies. This is unfortunate because such agencies are not equipped to perform basic marketing decision-making functions. An advertising agency is designed to assist a client with decisions as to uses for the various media along with message content and form. But the primary decisions involving the components of the marketing mix cannot be performed by an advertising agency and must, of necessity, be made by a transit management staff that is designed to perform the marketing function.²¹

Another inherent defect with a reliance on an agency is that such a course often retards non-promotional areas of management.

. . . it must be remembered that much of an agency's compensation comes from a percentage of the media used cost. Thus, there is a built-in impetus to emphasize "promotion" as opposed to product development, research, pricing, or service.²²

The most important element of a marketing strategy, product planning, might be totally ignored if a transit manager were to rely on an agency for marketing decisions. Such an outcome would be totally unacceptable. If the four main characteristics of transit upon which transit is compared to other modes--speed, comfort, convenience, and safety--are remembered, it becomes clear that promotion is only one aspect of an effective marketing strategy.

Only a complete acceptance of marketing methodologies, therefore, will permit the transit manager to establish effective communication channels with the public. The marketing strategy must be devised and implemented

at the staff level, and has been defined by Lewis Schneider:

A transit marketing strategy will be defined as a set of market research, product planning, pricing, and promotion policies designed in accordance with basic objectives relating to the volume of traffic desired versus the cost of providing the service. A successful strategy will require a "mix" of policies keyed to the differing requirements of the wide variety of "trip-takers" in the urban community.²³

A Case Study

The Metropolitan Tulsa Transit Authority (MTTA) of Tulsa, Oklahoma, provides an excellent example of a transit system which abandoned traditional public transportation concepts in favor of a consumer viewpoint and the Lovelock model. The MTTA experience provides credibility to both the effectiveness and desirability of transit marketing strategies.

The MTTA is the principal mass transportation carrier in the city of Tulsa. It is owned and operated by a public authority created to serve the City of Tulsa in the capacity of a public trust. The system, including all equipment and property, was purchased by the city in 1968, following a labor dispute between hourly-rated employees and the previous owners of the system, the Missouri-Kansas-Oklahoma (MK&O) Transit Line. This dispute led to a strike and the abandonment of intra-city transit in Tulsa by MK&O.

In order to insure the continuance of public transit in Tulsa, the city created the Metropolitan Tulsa Transit Authority and turned over to it all equipment, supplies, and property. The Authority settled the wage dispute and restored service after a two-month strike period during which the citizens of Tulsa were completely without bus service.²⁴

During the first years of its existence, the MTTA generally sought a continuation of the routes and policies established by MK&O. No new

bus lines or route modifications were accomplished. To finance the increased wage settlement with its union employees, the Authority adopted an increased fare structure and reduced midday service.

The inadequacy of the MTTA fare structure and service level became increasingly apparent as each succeeding month passed. Passenger levels dropped to abysmal levels. As farebox revenues declines, subsidies from the city's general tax revenue funds were required to keep MTTA buses running. The size of these subsidies continued to grow.²⁵

Table I indicates the static nature of MTTA services as measured by mileage counts, and the downward trend of passenger traffic.

TABLE I
MTTA MILEAGE AND PASSENGER STATISTICS
1968-71

Year	Mileage	Passengers
1968	1,250,000*	3,560,213
1969	1,239,295	2,333,240
1970	1,257,879	2,137,733
1971	1,225,864	1,756,136

*Estimated. Figure for 1968 not available.

Source: Metropolitan Tulsa Transit Authority.

MTTA's problems were easy to diagnose: services had been allowed to decline to wholly inadequate levels. Midday buses were available only on

four routes, and Saturday service was restricted to these same routes with one- to two-hour waits between buses. The rolling equipment was in terrible condition, many buses showing rusty exteriors and the results of unrepaired traffic accidents. Bus interiors were usually dirty, the seats torn, windows often broken. Maintenance was held off in attempts to lower operating costs.²⁶

By far, the most devastating of MTTA's deficiencies concerned the nature of its route system. Tulsa's growth patterns have been dynamic, though imbalanced. The city's expansion, however, was not mirrored by MTTA's scheduling and routing procedures. Bus routes had undergone only small changes dictated by purely operational considerations such as street condition and traffic flow. The result was a route system that did not come near many of the newer residential and employment centers.²⁷

The inadequacy of MTTA's route services made many Tulsans "auto-captives." As there was for many residents no available public transportation alternative, the only conceivable form of transport became the automobile. Thus, it was not necessarily the distinct advantages of automobile travel that led to its widespread use in Tulsa; but, rather, the absence or inadequacy of public transportation services.

By 1972, it was clear that something had to be done if the MTTA were to survive. The inability of the transit authority to attract new passengers led many observers to predict the eventual extinction of transit in Tulsa. Many Authority members publicly espoused a prediction that transit would soon prove too expensive a service for the city to provide and would soon be phased out entirely.

The Authority eventually adopted this ideology officially. In applying for a capital grant from the Urban Mass Transportation Administra-

tion of the federal Department of Transportation, the MTA proposed to replace its worn-out 45-passenger buses with 33-seat models. No plan for application other than a request for cosmetic improvements such as bus shelters along with new maintenance and route supervisory equipment. Clearly, the Authority was predicting that the passenger decline would continue, as evidenced by the decision to buy smaller buses.

The sequence of events leading to the eventual demise of the MTA was interrupted suddenly in January of 1972. At that time, the Authority named as its Executive Director a 65-year-old transit veteran named Joseph Arnn. Arnn had a lifetime of experience in the transit industry. He also was one of the few men in the United States who espoused an active marketing and public utility role for mass transportation. Arnn theorized that the demand for transit was subject to the same market conditions that exist for every form of transportation, and further believed he could reverse Tulsa's history of transit decline by adopting a marketing strategy.

Arnn's basic approach to transit marketing involved the adoption of an economic framework for consumer demand which was used in most commodity industries:

. . . the modern theory of consumer behavior is based on the assumption that the consumer allocated expenditures on commodities as if he had a fixed, ordered set of preferences, described by an indifference map or by an ordinal utility function, that he maximizes subject to constraints imposed by the income he received and the prices he must pay.²⁸

In addition, this theory has been modified by several authorities to include the prospect of variable consumer choice by assuming learning behavior might take place on the part of the consumer. Such things as advertising, price policies, promotion, and creation of new products may cause shifts in consumer preferences.²⁹

Arnn's embracing of general marketing principles and economic models

of consumer behavior met both a disbelieving community and a reluctant Authority. Nevertheless, Arnn argued successfully against the purchase of smaller buses and persuaded the Authority to remain with larger buses. The key element in his argument proved to be the lower over-all operating and maintenance costs of large buses rather than the promise of an up-swing in passenger demand.

Arnn remained as director of the MTTA for eighteen months, and this period can be referred to as Phase I of the MTTA marketing strategy. Arnn was handicapped by four overriding considerations: (1) a generally poor fleet which could not be replaced immediately due to a long delivery time for new buses; (2) an outmoded route system previously described; (3) a total absence of funds for marketing and promotional activity; and, (4) a high fare structure set up on a complicated zone system. The combination of these budgetary and system characteristics, Arnn felt, effectively undermined MTTA's potential customer appeal.

Arnn correctly judged that direct advertising and promotional policies should be avoided. The very poor state of the service precluded such activities since any advertising that mentioned "good service" or "comfortable travel" would be misleading and might backfire. Several studies have confirmed Arnn's assessment. A study in Pittsburgh, for example, concluded that unrealistic transit advertising led to an increased decline in passenger traffic.³⁰

Arnn's main approach was to adopt an informal public relations program that would emphasize the potential of the transit concept rather than a direct promotion of the MTTA system. Again, Arnn was basing his strategy on solid theoretical ground: research in Denver had shown the public often thought of a public agency as slow, bureaucratic, and politically

oriented.³¹ Arnn's reliance on the appeal of the transit concept over a pure MTTA orientation was based upon this type of research finding.

The public relations program designed by Arnn was established along the lines of the two-step flow theory of communications. This model suggests that there is an intermediary between the source of a message and the public. This intermediary is often referred to as an "opinion leader," and is credited in theory with making possible the complete dissemination of a message. The paradigm suggests a message is first received by an opinion leader who judges its merits and then decides whether it is worthy of dissemination. The opinion of the leader, according to the theory, has a great deal to do with how the message is received by the general public.³²

The concept of opinion leadership is widely used in marketing, but usually only as a prediction device. There is a very high cost involved in finding and isolating these leaders.³³ This cost prevented Arnn from attempting to isolate Tulsa's opinion leaders. Instead, he concentrated on the obvious networks of interpersonal communications hoping his message would somehow find the opinion leaders. This technique was also based upon basic marketing theory.³⁴

Arnn struck out on a one-man public relations campaign that was to invade every corner of the city of Tulsa. His emphasis was on downtown merchants and employers. He exhorted merchants to give their customers free bus rides in the same manner in which they offered free parking. He begged employers to encourage the use of transit by their workers. He made himself available to any club or organization that would listen, and gave some 120 speeches to these groups during the eighteen months he was Director of the MTTA. He concentrated on media relations to the ex-

tent that he finally won editorial support from all local newspapers and broadcast stations. And he gave much of his time to the MTTA's passengers, frequently riding buses to personally ask the public how they thought the bus system could be improved.

These activities consumed the bulk of Arnn's time, but he also constantly worked to improve operations. He brought to Tulsa and the MTTA a scheduling expert named Fred Gilliam. Given the title of Operations Manager, Gilliam was ordered to revise and modernize MTTA's antiquated route system. The result was the introduction of modern scheduling practices along with route analysis and revision in every corner of the system. Express routes were initiated, a new route created, and every route lengthened and re-scheduled.

Arnn also improved maintenance procedures and instituted practices designed to keep the buses cleaner. He painted the old buses a variety of colors so as to increase their visibility from the street. Public information activities were increased by encouraging passengers to call MTTA with their questions and by the publication of a system-wide timetable.

The success of these activities prompted Arnn to suggest changes in MTTA's pricing policies. MTTA had always operated on a 30¢-35¢-40¢ zone fare system and charged 5¢ for transfers to other lines. This policy was overly complicated and, in Arnn's opinion, discouraged transit ridership. He argued for a 25¢ across-the-system fare that would abolish zone charges. In addition, he advocated a \$5-25 ride punch pass which would lower the price of a ride to 20¢ for those willing to pay in advance.³⁵

The Authority did not approve Arnn's pricing policies until April of 1973. Their reluctance was based upon Arnn's admission that operating

subsidies would have to continue. He argued that the automobile was subsidized with tax dollars through the construction of streets and highways, and that transit must also be subsidized. The Authority clung to a belief that the optimum transit operation's revenues would cover all expenses, but finally agreed to increased tax subsidies and Arnn's fare structure.

Results and Conclusions

The results of Arnn's efforts indicated strongly that his theories and ideas were operational. The 1972 passenger total reached 2.1 million, compared with the 1971 total of 1.7 million. During 1973, the passenger total reached 2.6 million. The long years of decline were over.

Arnn left Tulsa in October of 1973. A grateful community filled his arms with plaques and mementoes.

With Arnn's departure, Phase I of the MTA marketing strategy was completed. For, in September of 1973, the last of an order of 45 new buses rolled onto MTA property. The new equipment was finally in hand, and Phase II could commence.

FOOTNOTES

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- ²⁴Metropolitan Tulsa Transit Authority, Capital Grant Application: Description of System in Which Material Will Be Used (Tulsa, December 10, 1973), p. 1.
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- ²⁶Ibid., p. 3.
- ²⁷Fred M. Gilliam, during an interview conducted on December 15, 1974.
- ²⁸George H. Haines, Jr., Consumer Behavior (New York, 1969), p. 2.
- ²⁹Ibid., pp. 1-2.
- ³⁰Lovelock, p. 102.
- ³¹Alan Hamilton, Generating Support for Transit (Washington, D.C., 1974), p. 5.
- ³²Gerald Zaltman and Ronald Stiff, "Theories of Diffusion," Consumer Behavior: Theoretical Sources, ed. Scott Ward and Thomas S. Robertson (Englewood Cliffs, N.J., 1973), p. 439.
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- ³⁴Zaltman and Stiff, p. 439.
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CHAPTER IV

TOWARDS A MARKETING STRATEGY: PHILOSOPHICAL AND METHODOLOGICAL CONSIDERATIONS CONTINUED

Upon the retirement of Joseph Arnn, Fred Gilliam was named executive director of the MTTA. Although he had come to Tulsa as a scheduling and operations expert, Gilliam had been an attentive student of Arnn's. He had become convinced that the basic structure of transit operations was amenable to the introduction of a complete marketing orientation.

The date of Gilliam's takeover of the directorship coincides with the beginning of the second stage of the MTTA's consumer strategies. With delivery of new equipment, MTTA finally had a product that could be effectively promoted. The modern, brightly-colored coaches were capable of attracting and holding public interest. Arnn's promises of faster, more efficient service now became possible.

Gilliam was fortunate also in that Arnn's successes had led the Authority to approve larger operating subsidies. And, for the first time, a significant budgetary appropriation for advertising and promotional activity was approved. Gilliam, then, was able to conceive and execute a marketing strategy immediately upon becoming the Executive Director of the MTTA.

The Basic Ideology

As explained in the previous chapter, Arnn's marketing strategies

were based upon macroanalytic, economic models of consumer demand. Considering the restrictions placed on his activities, this model proved quite functional and highly successful. Gilliam, however, chose to reject this model in favor of more microanalytic theories. With a more realistic budget and new buses at hand, Gilliam needed a theoretical structure that would guide operations through a period of general expansion. Whereas Arnn's efforts had been designed to cease the passenger decline and hold the line against further reverses, Gilliam's plan was to actively enter the market and compete against the automobile. As Gilliam explains:

In the first few days of my directorship, we were totally consumed by the need to modernize and expand transit services in Tulsa. Joe Arnn had almost singlehandedly reversed the downward trend of bus ridership and this had proved to the staff that significant improvements were not only possible but essential. But we also knew that a larger MTTA would require a more ambitious operating framework. We began to search for aggressive expansion strategies. The end result was a complete re-alignment of both the organizational chart and the route system.¹

Gilliam's need for "aggressive strategies" led to the adoption of the Lovelock model as the guiding force behind the MTTA's marketing strategy. A copy of the model was made and placed on the office wall so as to provide a constant reminder to the staff of the need for a consumer orientation to operations. The Lovelock model completely replaced Arnn's economic-based paradigms.

This change in philosophical and theoretical frameworks was the single most important step in the eventual development of the Phase II MTTA marketing strategy. Adoption of the Lovelock model meant an acceptance of psychological and sociological explanations for consumer behavior. Specifically, it led to an adoption of the theories concerning the diffusion of communications upon which Lovelock had based his model.²

Diffusion Theory

A considerable body of theory exists within the social sciences on the rate of adoption for a new idea or product by the public. It was this theoretical foundation upon which Gilliam based the MTTA marketing strategy.

Of course, transit service does not qualify as an innovation in the normal sense of the concept. However, in terms of diffusion theory, the revitalization of a transit system does fit into the category of a new or novel approach to transportation. According to Gerald Zaltman:

Innovations in marketing may take any of the following forms:

1. Development of a completely new product or service
2. Improvement of existing products
3. New markets for existing goods and services
4. Finding new uses for an existing product
5. Unique changes in advertising, merchandising, policies, packaging policies. . . .³

Technology, then, does not determine whether or not something is an innovation. The intended impact upon potential users is the key characteristic. This means a revitalized bus system can be thought of as an innovation and that diffusion theory is applicable to transit marketing.⁴

An innovation can be quickly defined as "any idea, practice, or material artifact perceived to be new by the relevant adopting unit."⁵

The process by which utilization of the innovation becomes widespread is referred to as diffusion:

Diffusion is the process by which an innovation spreads. The diffusion process is the spread of a new idea from its source of invention or creation to its ultimate users or adopters.⁶

The diffusion process, moreover, has definite time parameters which have been discussed by Gerald Zaltman and Ronald Stiff:

The diffusion process begins when the first member of the population becomes aware of the innovation and continues until the innovation is no longer adopted, either because of total adoption by the community or non-adoption by some segments of the population.⁷

The key element in utilizing diffusion as a management strategy is the realization that the adoption process varies with the individual consumer:

Adoption is a decision to continue full use of an innovation. This definition implies that the adopter is satisfied with the innovation.

The adoption process is the mental process through which an individual passes from first hearing about an innovation to final adoption.⁸

The adoption process can be thought of in terms of separate stages. Thomas S. Robertson proposes a seven stage "acceptance-decision" model. The seven stages in Robertson's paradigm are: (1) problem-perception stage during which the potential adopter realizes a problem, either real or potential, in his environment; (2) awareness of the innovation during which the adopter becomes aware of the innovation's potential for solving the problem discovered in the first stage; (3) comprehension of the innovation; (4) attitude formulation toward the innovation; (5) the legitimization within the adopter's value structure of the innovation as the proper course of action; (6) trial stage during which the adopter uses the innovation for the first time; (7) adoption. Robertson further suggests that one or more stages may be skipped during the adoption process and that regression can also occur. Dissonance, or the conflict of an innovation with an adopter's values and opinions can also occur as another stage in the adoption process.⁹

Of course, an innovation may be rejected at any stage of the adoption process. After adoption, a rejection is called a discontinuance.¹⁰

Of primary importance to the successful diffusion of an innovation are the attributes of the innovation that are deemed relevant by the consumer.¹¹ The literature suggests a variety of characteristics can be important during the adoption process: (1) cost of the innovation; (2) the risk of ridicule, ostracism, or expulsion from the social system as a result of adopting the innovation; (3) the level of reinforcement for using the new product or service; (4) the efficiency of the innovation in terms of time savings or avoidance of discomfort; (5) the communicability of the innovation or the ease with which news of its use can be disseminated; (6) the compatibility of the innovation with existing products; (7) the degree to which change is required on the part of the consumer, referred to as the pervasiveness of the innovation; (8) the complexity of the new product; (9) the relative advantage of the innovation over existing forms; (10) the degree of visibility or salience of the relative advantage of the new product.¹²

The Application of Diffusion to the MFTA

In order to make the adoption of a rehabilitated transit product possible, Gilliam and his staff analyzed the MFTA system in terms of the above list of characteristics. Specific strategies were devised in order to increase the transit system's appeal on those variables that would influence the adoption process.

Cost

As has already been stated in this study, the MFTA began a policy of

lower fares in April of 1973. This system was based on a 25¢ flat fare, a \$5-25 ride punch pass, and a free token program sponsored by downtown merchants. To this basic structure, Gilliam added a 50¢ all-day pass that eliminated transfer fees and could be used on all lines (except expresses) without restriction, and a \$3-20 ride punch pass for use by senior citizens during the midday and by students without restriction. In addition, a program was devised with a local bank which permitted bus passengers to use a credit card in lieu of bus fare. "Our aim," Gilliam explains, "was to create a highly diversified fare structure that would appeal to every segment of a highly diversified public."¹³

Compatibility and Pervasiveness

In order to make the MTTA service comply as closely as possible with the public's demand for transportation that was as efficient and reliable as the automobile, Gilliam pioneered and developed a variety of techniques. Through a system of "residential routing," the MTTA's buses were taken off the main arteries and run through key residential areas. This meant that bus passengers for the most part would have to walk only short distances to catch their bus. In addition, a "multi-stop" system was devised which ended the traditional reliance on formal bus stops. Passengers could board and de-board at any intersection along the route.

Complexity

The MTTA evaluated this characteristic as one of the prime deterrents against bus ridership. Traditionally, bus schedules and maps have been difficult to read and understand for the general public. To provide the potential bus passenger with all pertinent information, the MTTA staff

created a series of informational pamphlets to supplement the basic route schedules. Explaining bus schedules and fare procedures, the publications were made available throughout the metropolitan area and were mailed to the entire community via city utility billings. In addition, telephone information services were increased through the addition of phone lines. Every piece of printed information distributed by the MTTA contained the phone numbers and a plea to call with any questions concerning the MTTA's services.

Relative Advantage

The most important characteristics of an innovation are those which, in some way, make it preferable in the opinion of the consumer to similar products or services. In the case of transit the public's views of the relative advantages of public transportation over the automobile very clearly are a main determinant in the adoption or rejection of transit service. Normally, a marketing strategy would include a research function designed to discover those characteristics of a product upon which the consumer bases his purchasing decisions. The promotion policies are then made in an attempt to appeal to the attributes valued most highly by the public. Such research, however, is often expensive and was completely beyond the budgetary limitations of the MTTA. One of Gilliam's most remarkable marketing ideas concerned the manner in which the research upon which a promotion strategy could be based was to be gathered. As Gilliam explains:

We had long since grown used to borrowing ideas and research from other sources. We had to--we didn't have the money to initiate our own studies. So I guess it was natural for us to base our promotion strategies on information supplied by our competition.

Very simply, what we did was to pay extremely close attention to car promotions. During this particular time frame, auto manufacturers were trying to stress economy and fuel savings. We determined from this that the auto makers--who could afford research--were responding to the values held by the general public.

Our policy decision was to place a low priority on direct promotional activity. We felt there was no conceivable way that a car could compare favorably with transit in terms of economy, and that auto promotions were actually advertisements for transit in that they stressed trying to travel at the least possible cost. In our marketing mix, then, we de-emphasized direct promotion and concentrated on product planning, pricing, and public information programs. What promotion we did use said more or less the same things as the automobile ads.

However, we were constantly aware that our research programs should be improved as soon as it was financially possible. In terms of long-term policy, we embraced the more scientific techniques of the social sciences as the optimum research tool.¹⁴

In other words, Gilliam determined from the research and promotional efforts of his competition the characteristics of travel that were salient to the Tulsa consumer.

Research Programs

Despite the determination that much of the normal research necessary for a promotional strategy could be sidestepped by monitoring the auto industry, Gilliam and his staff were aware that product planning must be based on sound research. The Lovelock model emphasized development of a product that will match as nearly as possible the consumer's conception of an "ideal" form of transport. This suggests it is a responsibility of transit management to monitor consumer behavior and attitudes, and to evaluate the credibility of the service in view of the customer's preferences. Toward that end, MTTA created systems for detecting and analyzing service demands.

Passenger and Route Analysis

The implementation of a varied fare collection system made imperative the development of a reliable means of obtaining MTTA's passenger count statistics.

The compilation of statistical information concerning the daily operations of the Metropolitan Tulsa Transit Authority has become a difficult task The growing popularity of the punch pass combined with the tremendous increase in bus patronage have made meaningful data hard to obtain. Punch pass passengers are not recorded in the fare box and the traditional methods of passenger counting can no longer be applied.¹⁵

Two types of data were viewed as essential: (1) relevant information on the socioeconomic data and travel patterns of passengers; and, (2) routine passenger counts. In order to obtain these types of data, survey research was adopted.

As a research technique, surveys differ from experimental research in that the surveyor has little control over the variables involved.¹⁶ A survey attempts to discover relevant variables by asking subjects questions concerning their activities and their lifestyles. Other variables deemed relevant to the behavior being studied are also explored. Statistical testing is then used to discover relationships between variables.

In experimental research, the investigator controls the environment in such a way that he can alter a variable and observe the attendant variation in the behavior of the subject. Much clearer relationships are often detectable than is the case with surveys, yet the experimental technique is not fully adaptable to transit needs. For one thing, it would be extremely difficult to devise an experimental situation in which the multitude of variables involved in making trips were controlled. For this reason, MTTA chose the technique of survey research.

To obtain relevant socioeconomic data, a survey was devised. This form was designed by the Indian Nations Council of Governments and administered during late November of 1973. The respondent population consisted mainly of morning peak hour passengers on all MTTA routes.

The passenger survey provided much needed information on MTTA consumers, but a technique also was needed that would very quickly reveal daily passenger counts and detect significant shifts in demand. In dealing with the problem, MTTA again resorted to survey research.

A stratified random survey passenger count methodology was devised. A random sample is one which gives every unit in the population a calculable (and non-zero) probability of selection. Stratification is a process of dividing the population into a number of strata and then drawing a random sample from each stratum.¹⁷ The population was defined as the total number of bus runs on all routes. Then the population was divided according to time of day and direction. Six strata were defined for weekdays: AM Peak Inbound, AM Peak Outbound, Midday Inbound, Midday Outbound, PM Peak Inbound, PM Peak Outbound.

Specifically, the strata were defined thusly:

(1) AM Peak Inbound: bus trips arriving in the downtown area between 7:15 AM and 8:30 AM;

(2) PM Peak Outbound: bus trips leaving the downtown area between 4:15 PM and 5:30 PM;

(3) AM Peak Outbound: bus trips leaving the downtown area between 7:15 AM and 8:15 AM;

(4) PM Peak Inbound: bus trips leaving the end of the line between 4:15 PM and 5:30 PM;

(5) Midday Inbound: all non-peak inbound trips;

(6) Midday Outbound: all non-peak outbound trips.¹⁸

In addition, Saturday bus runs were stratified into inbound and outbound

classifications and recognized as a totally distinct survey requirement.¹⁹

The technique involved pulling a random sample from each strata, and then notifying the driver of the selected runs to count all passengers boarding his bus during the selected time interval.

A test of this system was made by the author of this study on March 27, 1974. The results are fully examined in Appendix A.

Non-Passenger Data Techniques

As the MTTA had adopted an expansion program, reliable information channels with the non-riding public had to be established. MTTA's expansions could not be successful unless the increased bus service met the needs and desires of people not riding the bus. In order to attract new passengers, route analysis and planning had to be based on extremely precise information.

It has been described how Gilliam relied on an analysis of the competition for guidance in directing promotional strategies. But no such technique was possible in the area of operations. Market research was critically needed to guide the expansion of the MTTA and the automobile industry did not provide guidance.

The most obvious market research technique would have been a community wide survey that would examine in some detail the travel habits of Tulsa's citizens. Such an effort would be extremely costly, and MTTA's staff did not possess sufficient expertise to develop an adequate survey questionnaire. The ability to devise an unbiased, reliable form is a difficult, expensive task in itself, and the administration of a large survey also requires considerable knowledge and ability. The ease with which invalid surveys can be devised has led many firms to choose an

independent market research firm as a means of obtaining unbiased and objective results.²⁰ The expense, however, remains high even when an outside organization is consulted.

The MTTA considered a community-wide market survey as the optimum research tool, but recognized the costs in time and money were prohibitive. Also, there was an inherent problem with large surveys in that they are difficult to repeat. The inherent defect, then, is an inability to detect rapid shifts in community opinion.

These considerations led the MTTA to adopt in principle the transit research technique of mode preference analysis. Used widely for transit studies in Kansas City, Missouri, the technique was devised as a means of analyzing market potential while isolating groups with common destinations and origins. The survey tool is based "on the theory that people who have common trip destination often have common trip origin."²¹

The basis tool of this technique is a series of attitude surveys that relate to major trip attraction areas in a specified region. The surveys are statistical in nature. In Kansas City, the surveys were distributed with the help of major employers in the area. The idea was to question people from their destination point about their origination point.²²

The MTTA did not completely adopt this methodology. Only the theory of common origin and destination was accepted. To implement the theory, passenger petition drives were encouraged. A component of the public information program became the dissemination of the knowledge that the MTTA could be petitioned for new service. Thusly, groups with common trip goals were isolated.

During 1973 and 1974, petitions containing nearly 2,000 names were

received at the MTTA offices. These petitions led to the expansion of the express bus system, to completely new service routes leading to the airport industrial area, and, for the first time in Tulsa's transit history, to a crosstown route which did not center on the downtown area, but, instead, linked various residential area shopping centers.

Of course, the use of petitions prevented the use of statistical analysis in route planning. But it was determined that petitions encouraged a greater passenger involvement in the bus system. Instigators of petitions often came to feel they were responsible for the new routing and worked to make it successful. Petition drives often created opinion leaders among regular passengers who effectively encouraged transit ridership.

The Results

The MTTA's marketing strategies have been described as being easily divisible into two phases. This division conformed nicely to the demands of analysis, but in reality no such clear strategical demarcation point was evidenced. The two phases of MTTA's marketing strategy were complementary and could just as easily be described as a single strategy. Certainly, the various programs were designed with the single goal of increased patronage in mind.

It is clear that the theories and practices of Joseph Arnn prepared the groundwork upon which a revitalized MTTA was built. Once new equipment was received, this groundwork was expanded into a fully coordinated marketing strategy that proved beyond question that a transit system can effectively compete in the marketplace against the automobile.

The results of the MTTA efforts were simply incredible. During

1974, service was increased by 50 per cent over 1973 levels and by 116 per cent over 1972. Passenger statistics climbed to 3.8 million, easily outdistancing the 1973 total of 2.6 million and the 1972 count of 2.1 million.

The cost of this expansion came high. The amount of tax subsidy had to be tripled over a four-year period. But, in terms of non-monetary gains, the costs of providing the increase in service were more than justified. The 1.2 million additional passenger trips made in 1974 over 1973 can be deduced to have been formerly made by automobile. That means the MTTA's expansion made a considerable dent in the total number of auto trips made in Tulsa. Less air and noise pollution and less congestion were the results. Even non-bus riding Tulsans enjoyed the benefits of a superior bus system.²³

The MTTA experience also provided support for the contention that diffusion theory is applicable to transit operations. The time of the adoption process varies among individuals, but many of the characteristics of those who adopt innovations very quickly are known. Among the characteristics of early adopters are: higher degree of education; greater exposure to communication channels; higher social status; high degree of social mobility; possess an economic orientation; possess a favorable attitude toward credit; generally work in specialized occupations.²⁴

The passenger survey conducted in November of 1973 showed that MTTA's transit programs were being responded to by a group that was characterized by many of the above traits. Survey questions concerning annual family income revealed a high degree of usage by people with incomes over \$7,000 a year. Nearly half of the respondents indicated they owned a motor vehicle which could have been used to make the trip but they chose

to take the bus instead. The results, therefore, tended to confirm the salience of diffusion theory as a transit management tool.

The MFTA experience, then, indicates clearly that marketing strategies are effective transit management tools. In addition, communication theories, particularly those concerning the diffusion of innovations, can provide theoretical foundations for transit planning and expansion.

FOOTNOTES

- ¹ Fred M. Gilliam, during an interview conducted on December 15, 1974.
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- ³ Gerald Zaltman, Marketing: Contributions from the Behavioral Sciences (New York, 1965), p. 2.
- ⁴ Lovelock, p. 32.
- ⁵ Gerald Zaltman and Ronald Stiff, "Theories of Diffusion," Consumer Behavior: Theoretical Sources, ed. Scott Ward and Thomas S. Robertson (Englewood Cliffs, N.J., 1973), p. 426.
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- ⁷ Zaltman and Stiff, p. 451.
- ⁸ Rogers, p. 17.
- ⁹ Zaltman and Stiff, pp. 441-43.
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- ¹² Zaltman and Stiff, pp. 427-30.
- ¹³ Fred M. Gilliam, during an interview conducted on December 15, 1974.
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CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

In any discussion of the state of transportation in the United States, the overwhelming dominance of the automobile must be admitted. There are over 100 million autos registered in the fifty states. Almost eighty per cent of U.S. households own at least one car. American auto-makers produce one-third of the world's cars.¹

The pervasiveness of the private car is understood when it is realized that 59.4 per cent of households with an annual income less than \$3,000 own no car, but 76.5 per cent of the workers from these families get to work by automobile. Apparently, carpools are an important form of transport for low-income travelers. Public transportation accounts for 11 to 14 per cent of the work trips taken in the United States, and only 3.23 per cent of the total number of trips.²

These figures do not, however, serve as an unqualified endorsement of the private car as an inherent part of the American way of life. In many cases, car drivers are "auto-captives" and must use their cars as "transit captives" must use public transportation. Variables such as geography, low density, housing, architectural planning, and employment patterns greatly affect the transportation systems of a community.³ And, at the top of any list of the conditions involved in transportation effectiveness is the attitude and performance of transit management.

This study has consistently argued that the strategies of the tran-

sit manager have a direct relation with the ability of public transportation to attract new passengers. The role of governmental policy in the rejuvenation of a transit system has not been addressed directly, but is clearly of immense importance. A slight diversion from the main topic is therefore justified to explain the role of public policy in influencing the development of transit.

Governmental Policy

Clearly one of the most important factors encouraging the popularity of the automobile has been governmental policy. James S. Gallagher has written:

The present dominance of the automobile as the primary mode of urban transportation has been over 40 years in the building, and is the direct result of more than 30 years of intensive, sustained research, development, and capital investment. In the process, parallel efforts and investment in public transport all but ceased.⁴

The disparity between moneys available for highway transportation projects and those available for non-highway developments have been immense in the past. For example, the Highway Trust Fund receives an annual income of \$6 billion from the four-cent-a-gallon federal gasoline tax. And this trust fund has existed for many years. In contrast, Congress passed only in 1974 a bill that will provide \$11.8 billion over a six year period for transit operating and capital needs. Clearly, "balanced transportation" goals are not reflected in funding levels. In the words of Edmund H. Mantell:

As an interesting illustration, one may point to the fact that urban residents may perceive themselves to be incurring a self-imposed penalty by selecting a non-highway construction alternative. If an urban area selects a non-highway alternative and the highway funds which they could have received are disbursed elsewhere, the urban area residents will not receive

direct benefits from the highway user taxes which they have paid and which are reserved almost exclusively for highway expenditures.⁵

The policies of governmental agencies are critically important because they affect directly the rate of diffusion for transit throughout the community. Governmental decisions modify the relative advantages of transit over the automobile, thereby encouraging or discouraging the adoption of public transportation.

"The most accepted assumption regarding the shape of the diffusion curve is that the acceptance follows a normal (bell-shaped) curve over time."⁶ This suggests that transit could potentially become the dominant transportation alternative for a target population or could, just as easily, be relegated to a minor role. The key variable is the number of advantages the transit passenger is allowed to enjoy as opposed to the car driver. And this variable is defined exclusively by governmental policy.

It is known that a considerable time lag is required before an innovation becomes widely accepted.⁷ Also, the population differs on the speed at which adoption occurs.⁸ A community, moreover, has a high degree of population shift which may preclude total adoption.⁹ But none of these conditions circumscribes the rate of potential transit acceptance. Only governmental policy effectively prevents widespread diffusion.

It has become clear that public transportation is an essential public service, just as garbage removal, fire protection, and police protection. It has also become clear that it cannot be financed out of the fare box.¹⁰ Tax subsidies have proven to be essential in most cases, and only when these subsidies begin to reach equity with indirect auto subsidies can the theory of "balanced transportation" become a reality.

Transit Management

Of course, ". . . it is not enough to invest money in public transportation: the real challenge comes in persuading people to use it."¹¹ The challenge facing transit management, then, is finding the means of attracting sizeable passenger increases as a means of persuading governmental entities that more support is justified.

In this regard, the example of the Metropolitan Tulsa Transit Authority assumes an important dimension. More than any other aspect of operations, the MTTA emphasized communication: communication between itself and the public, and between and amongst passengers.

Therefore, the theories of mass communications have been shown to be a potentially effective tool in the encouragement of balanced transportation planning and transit ridership. However, the MTTA experience is also very clear in pointing to the inherent difficulties in implementing a marketing strategy. MTTA initiated its consumer orientation philosophy in early 1972 and, as of early 1975, the process is not yet complete. According to Janice Pappan, MTTA's Manager of Marketing and Service Planning, "MTTA has only completed the basic elements of a long term strategy. Clearly, Phase III of our program will be as intense as the previous two stages even though the philosophical structure will remain the same."¹²

Marketing, then, is not a specialized function. It is an orientation, a methodological structure which, in order to be effective, must serve as the basis of the transit operational strategy. Its implementation is a slow process which emphasizes flexibility at every stage. The initial efforts should not be concentrated in the areas of advertising and promotion but, instead, in the all-important process of strategical formulation. The particular strategy adopted by a transit agency serves as

a cohesive, unifying force in the creation of marketing programs.

Again, the example of the MTTA is most enlightening. In its marketing strategies, MTTA abandoned a large number of traditional transit concepts in favor of the theoretical formulations of the behavioral sciences. A common sentiment within the transit industry is to regard theories possessing an academic taint as being too far removed from the realities of day-to-day operations to be useful. Clearly, MTTA found this not to be the case.

In particular, MTTA utilized psychological and sociological theories of consumer behavior to analyze, predict, and evaluate both present service levels and future expansions. The efficiency of the strategy was demonstrated by a sizeable increase in passenger totals.

The critical point is that the behavioral sciences are rich in theories that may be applicable to transit policy and that can be effectively utilized in the creation of a marketing strategy. Perhaps a particular transit agency will determine that diffusion theory has only limited applicability to its operations. This fact would not justify operating with an inadequate strategical base. Other theories exist and their applicability needs to be tested.

If it is assumed that the business of a transit system is not to be an operator of equipment but a mover of people, then people, with their variety of preferences and mannerisms, become the main component in transit planning. This notion clearly points public transportation in the direction of the behavioral sciences. To ignore this basic premise is to risk developing a transit network that will not operate to its full potential.

FOOTNOTES

¹Automobile Manufacturers Association, Automobile Facts and Figures (1973 Edition, Detroit, 1973), pp. 12-30.

²Ibid., pp. 30-36.

³Christopher H. Lovelock, Consumer Oriented Approaches to Marketing Urban Transit (Springfield, Va., 1973), p. 16.

⁴James S. Gallagher, "What is Holding Back the Development of New Transit Systems?" Metropolitan (September/October, 1969), p. 16.

⁵Edmund H. Mantell, "Economic Biases in Urban Transportation Planning Implementation," Traffic Quarterly, XXV (1971), p. 123.

⁶Gerald Zaltman and Ronald Stiff, "Theories of Diffusion," Consumer Behavior: Theoretical Sources, ed. Scott Ward and Thomas S. Robertson (Englewood Cliffs, N.J., 1973), p. 452.

⁷Everett M. Rogers, Diffusion of Innovations (New York, 1962), p. 2.

⁸Ibid., p. 162.

⁹Zaltman and Stiff, p. 453.

¹⁰"Report on Joint Conference, Eno Foundation Board of Directors and Board of Consultants, November 7 & 8, 1973," Traffic Quarterly, XXVIII (1974), p. 335.

¹¹Lovelock, p. 8.

¹²Janice Pappan, during an interview conducted on December 15, 1974.

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APPENDIX A

A STRATIFIED RANDOM PASSENGER COUNT

On March 27, 1974, the MTA staff made a count of passengers using the stratified pandom procedure explained in Chapter IV. All runs belonging to a certain strata were numbered and then a number of runs from each strata were selected by using random selection techniques.

Figure 2 represents the form that was distributed to the drivers of the bus runs selected for the survey. All blank spaces except for the passenger count total were filled in prior to the distribution to drivers.

PASSENGER COUNT SURVEY FORM

DATE: _____ DAY: _____ CODE: _____
 DRIVER: _____
 ROUTE: _____ SCH NO: _____
 TIME: _____ TO: _____
 FROM: _____ TO: _____
 TOTAL PASSENGERS: _____

PLEASE COUNT ALL PASSENGERS (INCLUDING TRANSFERS)
 BOARDING YOUR BUS BETWEEN THE ABOVE TWO POINTS.
 DO NOT COUNT PASSENGERS ALREADY ON BOARD AT STAR-
 TING POINT.

Figure 2. MTA Passenger Count Form Used
 With Stratified Procedure

The results of the survey are indicated in Tables II and III. It should be noted that the number of samples in each strata are not equal due to incomplete returns.

The mean scores of each strata were multiplied by the total number of runs in each strata to determine the total number of passengers. The

total was determined to be accurate when compared to passenger counts derived from revenue data.

TABLE II
SURVEY STRATA RETURNS*

AMPI	PMPI	AMPO	PMPO	MI	MO
2	3	15	22	1	20
21	12	10	20	13	18
35	4	14	16	2	0
20	32	12	45	8	7
25	15	4	48	0	13
25	4	6	38	5	24
46	3	16	10	5	4
35	3	12	43	5	10
35	7	10	35	23	10
		10	42	7	10
				23	10
				10	12
				8	6
				0	5
				5	81
				8	1
				2	12
					15

*Strata are defined as: AMPI-AM Peak Hour Inbound; PMPI-PM Peak Hour Inbound; AMPO-AM Peak Hour Outbound; PMPO-PM Peak Hour Outbound; MI-Midday Inbound; MO-Midday Outbound. Midday run populations were larger than peak hour strata and therefore necessitated a sample twice the size of the peak hour samples

The survey revealed some surprises. Transit theory has long held that peak hour inbound morning runs are very similar to afternoon peak

outbound runs. However, the MTTA survey indicated a correlation of only .31 between these two strata. This finding led to a complete investigation of peak service with the eventual determination that service provided in the morning peak did not necessarily need to be provided in the afternoon. MTTA service requirements were altered to eventually require a lower number of buses in the afternoon peak as compared with the morning requirements. The ability to schedule a reduced number of buses in the afternoon resulted in a significant monetary saving.

TABLE III
STATISTICAL ANALYSIS OF PASSENGER SURVEY

	AMPI	PMPI	AMPO	PMPO	MI	MO
TOTAL RUNS	75	63	63	70	310	313
MEAN	27.11	9.22	10.90	31.90	7.35	10.28
VARIANCE	158.86	91.94	14.32	186.10	47.37	39.51
SD	12.60	9.59	3.78	13.64	7.88	6.29
SE	4.20	3.20	1.20	4.32	1.67	1.48

APPENDIX B

THE MTA PASSENGER SURVEY QUESTIONNAIRE

TULSA METROPOLITAN AREA TRANSIT USER STUDY

The Metropolitan Tulsa Transit Authority and the Indian Nations Council of Governments are conducting this survey to assess transit needs in the Tulsa area. Your cooperation is appreciated.

Please CHECK or CIRCLE the appropriate response for each question, and return this form when leaving this bus.															
Where did you board this bus? _____ (nearest intersection)													10 11 12		
Between what hours did you board this bus?	HOUR	AM						PM						13 14	
		6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6		6 to 7
		06	07	08	09	10	11	12	13	14	15	16	17		18
Please indicate your approximate address: _____ N S E W _____ Hundred Block (Circle One) Street or Avenue													15 16 17		
How far, to the nearest block, did you travel before boarding the bus?	One	Two	Three	Four	Five	Six	More Than Six	1	2	3	4	5	6	7	18
What type of fare did you use to board the bus?	Cash	Punch Pass	Student	Token	No Fare	1	2	3	4	5	19				
Where will you get off this bus? _____ (nearest intersection)													20 21		
How far to the nearest block, will you travel after leaving this bus?	One	Two	Three	Four	Five	Six	More than six	1	2	3	4	5	6	7	22
Which of the following best describes the main purpose of this trip?	Work	School	Shopping	Home	Health Care	Other	1	2	3	4	5	6	23		
How many days per week do you use an MTTA bus?	Less than One	1-2	3-4	5-6	7+	1	2	3	4	5	24				
Does this trip involve a transfer?	Yes	No	1	2	25										

Which route will you transfer to?							
Sub-Acres Rt. 1	E. 15th Rt. 1	Ridgeview Rt. 1	N. Peoria Rt. 2	Holiday Hills Rt. 2	Airport Rt. 3	Carbondale Rt. 3	
<input type="checkbox"/> 01	<input type="checkbox"/> 02	<input type="checkbox"/> 03	<input type="checkbox"/> 04	<input type="checkbox"/> 05	<input type="checkbox"/> 06	<input type="checkbox"/> 07	
Bruner Sta. Rt. 4	Wagon Wheel Rt. 4	E. 11th Rt. 5	Haskell- Evanston Rt. 5	Country Club Rt. 5	St. Francis Rt. 7	Greenwood Rt. 8	
<input type="checkbox"/> 08	<input type="checkbox"/> 09	<input type="checkbox"/> 10	<input type="checkbox"/> 11	<input type="checkbox"/> 12	<input type="checkbox"/> 13	<input type="checkbox"/> 14	
S. Lewis Rt. 8	E. 41st Rt. 8	Lansing Rt. 10	S. Peoria Rt. 10	E. 21st Rt. 13	Downtown Shuttle		
<input type="checkbox"/> 15	<input type="checkbox"/> 16	<input type="checkbox"/> 17	<input type="checkbox"/> 18	<input type="checkbox"/> 19	<input type="checkbox"/> 20		26 27
Was a vehicle available for your use to make this trip?			Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2			28
What is your auto driving status?			Licensed & Able to drive <input type="checkbox"/> 1	Presently un- able to drive <input type="checkbox"/> 2			29
How many vehicles are Owned by you and/or other members of your household?			None <input type="checkbox"/> 1	One <input type="checkbox"/> 2	Two <input type="checkbox"/> 3	Three or More <input type="checkbox"/> 4	30
How many persons are in your household, in- cluding yourself?			1 - 2 <input type="checkbox"/> 1	3 - 4 <input type="checkbox"/> 2	5 - 6 <input type="checkbox"/> 3	7 + <input type="checkbox"/> 4	31
Please describe yourself:			Male <input type="checkbox"/> 1	Female <input type="checkbox"/> 2			32
What is your family income category?	0 - \$4,000 <input type="checkbox"/> 1	\$4,000- \$6,999 <input type="checkbox"/> 2	\$7,000- \$9,999 <input type="checkbox"/> 3	\$10,000 - \$14,999 <input type="checkbox"/> 4	\$15,000- \$24,999 <input type="checkbox"/> 5	\$25,000 & Over <input type="checkbox"/> 6	33
What is your age group?	0-17 <input type="checkbox"/> 1	18-25 <input type="checkbox"/> 2	26-42 <input type="checkbox"/> 3	43-60 <input type="checkbox"/> 4	61-65 <input type="checkbox"/> 5	66 or Over <input type="checkbox"/> 6	34

What service improvements would you recommend to MTTA?

35

VITA

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