

Strategic options for state road transport undertakings in India

T.A.S. Vijayaraghavan

Central Institute of Road Transport, Pune, India

Background

Organized efforts to provide efficient and adequate passenger road transport started in India only after its independence in 1947. The passing of the Road Transport Corporation Act 1950 provided the necessary legal and financial framework for state participation. With the encouragement given by the Planning Commission and with suitable amendments to the Motor Vehicles Act in 1956, many state road transport undertakings (SRTUs) were formed in the 1960s and were able to provide better services, covered more areas and gave fair wages to the then workers. Studies clearly brought out that in 1948, newspapers were writing editorials urging the government to nationalize bus transport and to prevent the exploitation of the travelling public by inefficient private operators who were bereft of any social concern[1]. The SRTUs also contributed immensely towards the processes of industrialization and economic modernization undertaken during the post-independence period. Presently, there are 68 SRTUs operating nearly 110,000 passenger buses with an investment of around Rs.60 billion and employing nearly 773,000 workers to carry about 59.2 million passengers every day.

SRTUs do not enjoy a complete monopoly in the passenger bus transport. In terms of vehicle ownership, they account for only about 37 per cent. While there is total nationalization of stage-carriage operations in Maharashtra, Gujarat, Andhra Pradesh and Haryana and a huge presence in Uttar Pradesh and Karnataka,

Most of the views expressed in this article are compiled from the questionnaires which were expressed by the respondents, whose identities have been kept strictly confidential. Besides these views the other analysis and views expressed here by the author are his own and not necessarily those of the organization he belongs to.

The author wishes to acknowledge the chief executives, heads of departments of the selected SRTUs and the academicians who have extended their whole-hearted support and co-operation in responding to the questionnaire and sharing their candid views and concern about their SRTUs in the questionnaire. The author would like to thank Dr S. Padam, Director of CIRT, for encouraging his efforts into the nature of the transport industry and for all his help, guidance and co-operation. The author also wishes to acknowledge the help of Dr B.K. Mohanty of TRDDC, Pune, for his guidance in fuzzy sets approach, Mr T. Suri Babu for computer analysis and Mr Sudhakar Khairnar for secretarial help. Copies of Appendix 2 – the full questionnaire used in the survey are available on request from the author.

SRTUs play an insignificant role in states such as Bihar and Orissa. SRTUs concentrated on providing passenger bus services to the rural interior and backward areas, while private operators concentrated mainly on high density profitable routes.

SRTUs were created with the objective of supporting social and economic development by offering cheaper travel linking the hinterland with urban centres, subsidized service to the poor and students, better passenger amenities and well organized maintenance. Most of these social objectives were given priority in spite of their negative impact on SRTUs' financial health. Till recently, state governments were making budgetary provisions to cover the gap between expenditure and income of several SRTUs. Because of the continuing fiscal crunch at the central and state government levels, budgetary support for the SRTUs was curtailed forcing SRTUs to become financially viable. Notwithstanding the achievements over the past three decades, a considerable amount of inertia crept into the operational mechanism which eventually led to an erosion of financial viability and decline in the efficiency of operations. As a consequence, there arose a feeling that since the essential infrastructure facilities have already been built up, market forces could now play a better role to meet the transport requirements under the watchful eyes of the states so that the productive efficiency would not be hampered[2]. The international funding agencies also support the option of denationalizing certain areas of operation in the passenger transport sector[3].

Performance of SRTUs

Although there are acknowledged weaknesses in their working, SRTUs in general were providing better services to meet the travel needs in backward regions and of the under-privileged sections of the society. The fleet strength of SRTUs has increased from 73,890 vehicles in 1981-82 to 109,740 vehicles in 1992-93 while the volume of operations has increased from 5.7 billion kilometres in 1981-82 to about 9.9 billion kilometres. The average number of passengers carried every day was 38 million in 1981-82 and increased to 59.2 million in 1992-93. It may be noted that the surplus generated before tax and interest was around Rs.1.02 billion in 1981-82 and stood at around Rs.4.63 billion. During 1991-92, SRTUs provided concessional services worth Rs.2.41 billion to students and others. The fleet utilization was 88 per cent during 1992-93 compared to 87 per cent during 1991-92. It is to be noted that even 1 per cent improvement in overall fleet utilization will enable SRTUs to get an advantage equivalent to 957 additional buses every day. The overall effective kilometres per vehicle per day were 257, with a total of 9.9 billion kilometres during 1992-93. The number of passengers carried was 20.78 billion. While the SRTUs could generate a total revenue of Rs.64.29 billion, they ended up with a net loss of Rs.6.35 billion after tax in 1992-93[4]. Studies suggest that the major reasons for the poor financial performance of SRTUs are the high tax burden and inability to adjust fares to economic levels.

Objectives and scope

SRTUs have often been required to be all things to all people. The stakeholders, consisting of the government, passengers, employees, automobile industry and society in general, have attempted to pull SRTUs in different directions. When the emphasis was on service, profitability became a casualty. If profitability was stressed, socially desirable activities were hampered. From a total commitment to the public sector there has been a change to a near total encouragement of the private sector. Some observers feel that the answer may lie in better management of the public sector rather than in a sudden reaction turning towards an unproven private sector to take care of public utilities. But it became apparent that the present challenge could only be met by tightening management controls and a rededication to professional management with a vibrant social conscience. It is in this context that SRTUs needed strategic management to steer them through the turbulent years ahead[5].

SRTUs require strategic management because they can no longer be sure of the environment. If anything, it is likely to be more and more hostile. For over three decades, there was a political commitment to strengthen the public sector especially in public utilities. But today a *laissez-faire* approach is overtaking the welfare state commitment for reasons beyond anybody's control. The public are becoming more and more demanding and are not likely to put up with what they have; they will demand what they ought to have. It is, therefore, imperative on the part of SRTUs to begin the strategic management process by identifying the stakeholders and the demands they made. The strengths and weaknesses within the organizations should be analysed in order to build on strengths making the weaknesses irrelevant. The opportunities and threats in the external environment should be taken stock of so that opportunities are explored and threats converted into new opportunities. This would not only require an efficient organizational mechanism for each SRTU but a new direction to be given by top management, and top management alone. Since strategic management is top management business, the lead must come from there.

It is in this context that the article attempts to assess the strengths, weaknesses, opportunities and threats of SRTUs in order to ascertain the strategic position of SRTUs and to formulate strategies for the coming years with the help of a survey using a comprehensive questionnaire.

Data collection and methodology

There are several techniques for analysing the strategic dimensions of a business, its industry and its general environment. They usually include environmental scanning, industry structure analysis, perceptions of experts in the industry, etc. However, interviewing a mix of experts in the industry and academicians, researchers and consultants has been adopted here. A comprehensive questionnaire was prepared and sent to chief executives and heads of departments of a few selected SRTUs, along with a few academicians and researchers who closely observe the industry from outside and are associated with the transport industry academically. The questionnaire covered the following areas, eliciting the responses

to a few statements on a six-point semantic-differential scale from 1 (poor) to 6 (excellent):

- Mission, objectives and goals.
- General management factors like corporate planning, budgeting, structure, span of control, unity of command, MIS, morale, management control etc.
- Strengths, weaknesses, opportunities and threats of their organizations as they view them.
- List of a few important internal management factors, external management factors and success factors of their organizations.
- Details of internal factors covering all functional areas like finance, marketing, systems, research and development, operations management, maintenance etc.

In all, 20 responses were received, of which 14 were from chief executives and heads of departments and the rest from academicians and researchers. (They will be referred to as executives and academicians respectively.)

Analysis

Understanding mission and objectives

One of the major problems for chief executives is to allocate the necessary time for strategic management process and activities. Too often top executives spend every day on administrative and tactical concerns. Developing a mission statement is often overlooked as organizations rush too quickly to establish objectives and deal with strategic options. The mission statement is essential in effectively establishing objectives and formulating strategies. The responses from the SRTUs seem to vary on defining their mission and objectives. Historically and politically, SRTUs have taken shelter on the objectives as stipulated by the Road Transport Corporation Act 1950 (except Tamil Nadu Corporations) and no attempt was made to expand or to redefine the scope of the definition to suit the changing societal needs. The objectives such as adequate, efficient, economic and properly co-ordinated road passenger services to be run on business principles are expressed by some respondents as their mission and by others as objectives. The interpretations of mission, objectives and goals seem to be used interchangeably by the respondents. From the responses, it can be inferred that clear statements of mission and service objectives of the SRTUs are required.

Assessing the SWOT

From the perception and views of the respondents, the strengths, weaknesses, opportunities and threats of the state road transport undertakings in India were compiled and are listed in Tables I-IV.

Evaluating the strategic position

The first step in evaluating and choosing a strategy is to review the results of the strategic situation assessment in terms of factors critical to the success of

1. Either complete or partial nationalization of transport services of the governments in most of the states in India
2. Infrastructural facilities like large fleet strength, workshops, depots and other maintenance infrastructure, large network of operations, etc.
3. Well qualified and experienced manpower in managerial supervisory and other levels
4. Well organized with clear-cut procedures, rules and policies
5. A clearly defined organizational structure for effective planning and control
6. Historical back-up, support and goodwill of the travelling public
7. Social responsibilities in terms of rural services, etc.
8. Government support and back-up
9. High liquidity (as cash is collected every day)
10. Readily available market (for any services)
11. Short gestation period for investments
12. High employment generation potential per unit of investment
13. Significant role played in economic development

Besides these strengths, the corporation in Tamil Nadu has specific strengths:

1. Formation under Companies Act 1956, which gave greater autonomy and flexibility
2. Decentralization at the district level and government support in running corporations in all the districts
3. Professional management with technocrats heading the corporations
4. Professional board of directors for each corporation, consisting of the managing directors of the adjoining corporations with the Transport Secretary, Government of Tamil Nadu, as the chairman
5. Openness to modernize operations, wherever feasible

Table I.
Road transport
undertakings
(strengths)

the business. It involves an analysis of the organizations' external opportunities and threats and internal strengths and weaknesses. The responses received on the six-point semantic-differential scale have to be quantitatively assessed. In real world situations, such perceptions on various qualitative dimensions of an organization are rarely precise. To deal with such an imprecise nature of judgements, a method using fuzzy sets is introduced in this article. The details with illustrations are described in the Appendix.

Profile charts are prepared based on the scores obtained through the method outlined in the Appendix to get an easy-to-interpret picture of the internal critical success factors and external environment faced by the organizations[6]. The profile charts of the internal and external factors derived from the perceptions and views expressed by the respondents are presented in Figures 1 and 2 respectively. Viewing the entire gamut of activities and SWOT of SRTUs, the methodology of Rowe *et al.*[7] as described in David[8] is adopted with modifications to assess the strategic position of SRTUs as viewed by the respondents to formulate strategies for the future.

1. Highly labour intensive operations which often result in industrial relations problems
2. Susceptible to political interference in fare fixation, recruitment at even lower levels, route fixations, wage settlement, in almost all the activities
3. Lack of sustained and continued leadership at the top management level
4. Multiplicity of trade unions working at cross-purposes and inter-union rivalries
5. Very poor road conditions which constantly increase the cost of operations and pose maintenance problems
6. In the present structure, the authority and responsibility are not shared with a high span of control and lack of authority at the middle management level thus leading to lack of co-ordination at all the levels of management
7. Job security among all levels leading to complacency, inefficiency and indiscipline among workers
8. Overstaffing leading to high staff bus ratio
9. Lack of professionalism and work culture resulting in poor customer orientation and productivity
10. Posting bureaucrats as heads of the organizations who do not possess the required management background in managing transport organizations (except Tamil Nadu corporation) and their frequent transfers
11. No priority for buses on roads where the buses have to share the same space with other competing modes for the road space, unlike the railways
12. Uneconomic fare structure leading to financial problems
13. Restrictions imposed on state road transport undertakings regarding borrowings under the Road Transport Corporation Act, (barring Tamil Nadu corporation, where they face the problem of credit squeeze by banks)
14. Undereducated staff without formal training and exposure
15. Inadequacies and difficulties in the direct supervision of crew who constitute about 80 per cent of the manpower strength
16. Lack of enforcement of Road Transport Authorities in checking clandestine operations
17. Compelled to take on unsubsidized social burden which includes concessions to students, poor, handicapped, etc.
18. Lack of technological improvements

Table II.
Road transport
undertakings
(weaknesses)

Strategic position

Strategic position is a four quadrant framework that suggests strategies most appropriate for a given organization. In this context, the strategies are divided into four types: aggressive, conservative, defensive or competitive. The axes are: financial strength (FS), competitive advantage (CA), environmental stability (ES) and industry strength (IS). The two internal dimensions – financial strength and competitive advantage, and two external dimensions – industry strength and environmental stability, can be considered most important determinants of an organization's overall strategic position. Depending on the type of organization there are numerous factors that could comprise each of the dimensions mentioned above. The steps required for assessing the strategic position are as follows:

Table III.
Road transport
undertakings
(opportunities)

1. Ever increasing demand for transport services
2. Availability of new opportunities for development
3. Using the threat of privatization to improve productivity
4. Strong presence of state transport in several states
5. Potential areas for diversification like goods, parcels, tourism, etc.
6. Inadequacy of railway network in some regions (especially in West Bengal, Bihar and Orissa)
7. Availability of skilled and professional manpower in the market with up-to-date knowledge
8. Higher train fares (especially in Tamil Nadu) and natural preference of public to travel by bus even for long distance
9. Public goodwill and support in preferring state transport to private operators
10. Good response to special types of services

Table IV.
Road transport
undertakings (threats)

1. Inflationary trends influencing input costs such as fuel, chassis, tyre, tubes, etc.
2. Apprehension of the onset of energy crisis and possible shortage of fossil fuel in the future
3. Privatization policies of the central government as a part of the liberalization of the Indian economy
4. Stiff competition faced from private operators (more in Tamil Nadu) and undercutting of fares by them to woo passengers
5. Lack of enforcement to curtail illegal and clandestine operations by contract carriers, jeeps, matadors, etc. by private parties
6. Withdrawal of financial support from the government
7. High burden of taxation
8. Politicization of trade union activities leading to strikes, demonstrations, etc.
9. Growing expectations of travelling public which state road transport undertakings may not be able to fulfil owing to their own financial difficulties
10. Climatic conditions (especially in states like Kerala with frequent rains, West Bengal with frequent floods, etc.)
11. Not coping with the technological changes and innovations
12. Susceptible to public anger especially during riots, strikes and agitations causing damages to the assets
13. Political influence in internal decision making

- (1) For FS and IS, obtain numerical scores ranging from + 1 (poor) to + 6 (excellent) to each of the factors that comprise these dimensions. For ES and competitive advantage (CA), obtain numerical scores ranging from -1 (excellent) to -6 (poor) to each of the factors that comprise these dimensions.

- (2) An average score for FS, CA, ES and IS.
- (3) Add the two scores on the (horizontal x -axis (i.e. CA and IS) and plot the resultant point on x . Add the two scores on the (vertical) y -axis and plot the resultant points on y . Plot the intersection of the new xy -point.
- (4) Draw a directional vector from the origin of the strategic position graph through the new intersection point. This vector reveals the type of strategies – aggressive, competitive, defensive or conservative – most appropriate for the organization.

The details of the perception profile charts in Figures 1 and 2, and the scores calculated from the responses to the questionnaires, are used to list the factors for the four dimensions – namely competitive advantage and financial strength for the internal strategic position, and environmental stability and industrial strength for the external strategic position. The details of the factors and their corresponding scores are presented in Tables V and VI respectively. The situation as perceived by the executives and by the academicians and the combined perceptions is illustrated in Figures 3, 4 and 5 respectively.

Inferences

The directional vector in Figure 3 points towards the lower right quadrant indicating that the executives perceive SRTUs to be fairly competitive and competing in a rather unstable industry. The perceptions are quite natural as they tend to view their organizations based on the efficiency parameters, i.e. more inwardly from the supply side. The directional vector in Figure 4 points towards the lower left quadrant, indicating that the academicians perceive the following defensive strategies as most appropriate for the SRTUs:

- *Retrenchment.* These are helpful in regrouping SRTUs through cost and asset reduction in order to reverse declining revenues.
- *Divestiture.* These strategies will include selling a part of the organization.
- *Liquidation.* These strategies will imply selling all the assets, in parts, for their tangible worth.
- *Concentric diversification.* Concentric diversification strategies would include adding new services but related to the existing types of operations.

It is interesting to observe that the academicians' perceptions are divergent to those of the executives. Since the academicians' perceptions stem from the external environment in which SRTUs operate, their views cannot *in toto* be neglected while strategic directions are derived for SRTUs. Both the executives and the academicians are basically two dissimilar groups. It is debatable whether their views can be combined. However, in order to formulate strategic directions and options for SRTUs, they need to be combined.

Combined perception

Figure 5 reveals the combined perception of both the groups. The directional vector points towards the lower right quadrant, indicating that the SRTUs are

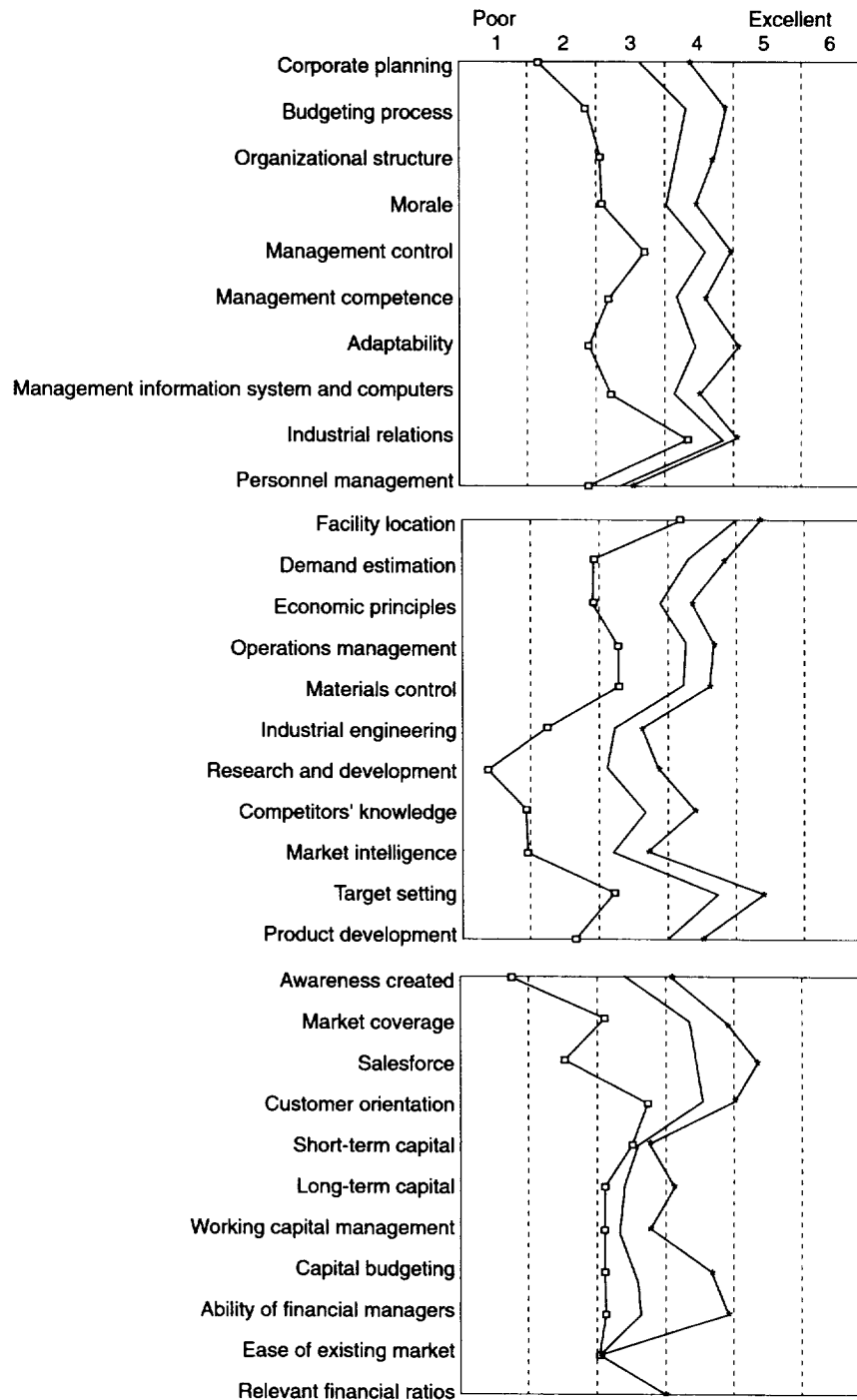


Figure 1.
Perception profile chart
of internal factors

Key: — Combined + Executives □ Academicians

Strategic options
for state road
transport in India

57

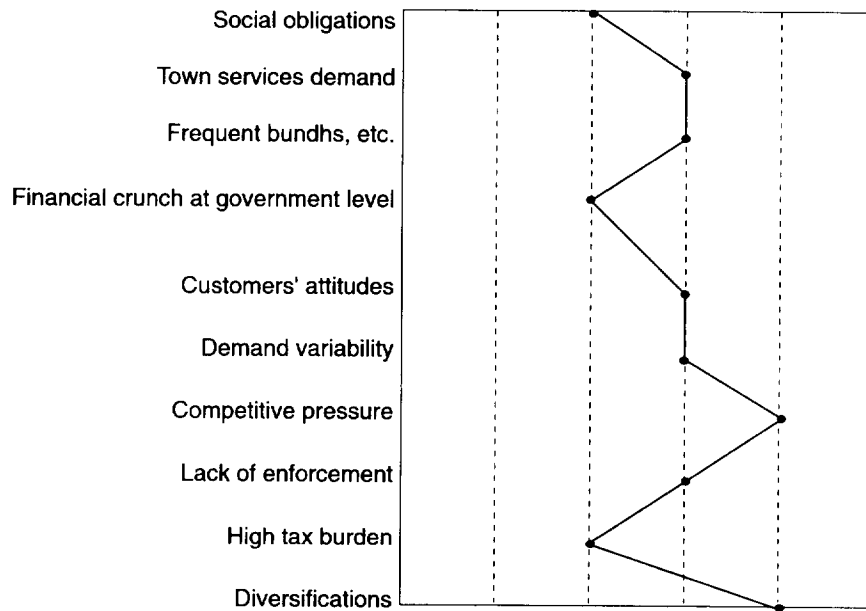
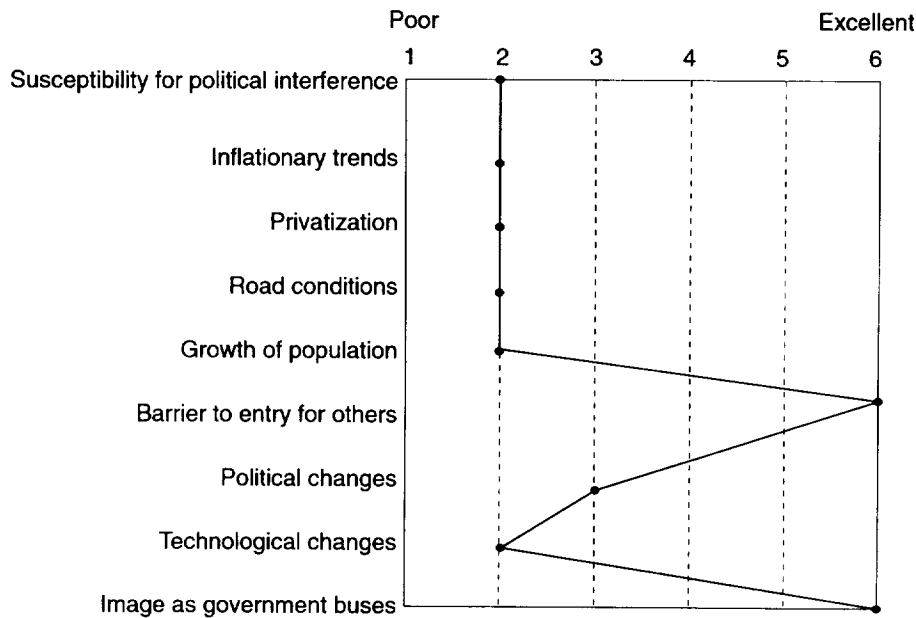


Figure 2.
Perception profile chart
of external factors

Table V.
Factors for internal
strategic position

Competitive advantage	Scores		Financial strength	Scores	
	Executives	Academicians		Executives	Academicians
1. Corporate planning culture and practices	3.36	1.15	1. Ability to raise short term capital	2.74	2.50
2. Organizational structure	3.72	2.03	2. Ability to raise long term capital	3.10	2.08
3. Budgeting process	3.90	1.88	3. Working capital management	2.74	2.08
4. Employee and manager's morale	3.45	2.08	4. Capital budgeting procedures and practices	3.63	2.08
5. Management control	3.99	2.71	5. Ability and competences of finance managers	3.90	2.08
6. Professional approach and outlook	3.60	2.16	6. Ease of exist from market	2.00	2.00
7. Management information system and computers	3.54	2.19	7. Relevant financial ratios	3.00	3.00
8. Facility location and effectiveness	4.44	3.23			
9. Traffic planning and operations management	3.83	2.03			
10. Economic considerations in operations	3.36	1.92			
11. Material function	3.14	1.77			
12. Marketing function	3.64	1.60			
13. Personnel management practices	2.45	1.88			
14. Industrial relations	4.08	3.33			
15. Research and development activities	2.88	0.39			
16. Adaptability to change	4.08	1.88			
17. Market share	4.00	4.00			
18. Service quality	3.00	3.00			
19. Customer loyalty	4.00	4.00			

Environmental stability	Score	Industrial strength	Score	Strategic options for state road transport in India
1. Susceptibility to political interferences in fare fixation, recruitment, route fixation and wage negotiations	2	1. Government support	6	59
2. Inflationary trends	2	2. Nationalization prevalent in most of the states	6	
3. Privatization policies of the government	2	3. Political interference in all aspects of operations	2	
4. Bad road conditions	2	4. Organizational structure	5	
5. Increasing growth of population	2	5. Lack of organizational and work culture	2	
6. Barrier to entry for others into market	6	6. Lack of professionalism in the management	2	
7. Political changes	3	7. Lack of planning and leadership	2	
8. Poor technological improvements	2	8. Excess staff situation	2	
9. Image as government buses in public	6	9. Growth potential	6	
10. Social obligations	3	10. Profit potential	5	
11. Demand for more tours or city services where returns are low	4	11. Poor financial stability	3	
12. Frequent bundhs and agitations causing damages to property	4	12. Capital intensity	3	
13. Financial crunch at the centre and state governments	3	13. Ease of entry into market	6	
14. Customers' attitudes and social changes	4	14. Low productivity	3	
15. Demand variability	4	15. High labour intensity	2	
16. Competitive forces	5	16. Fleet strength	6	
17. Lack of enforcement machinery to check illegal and clandestine operations	4	17. Infrastructure network	6	
18. High tax burden	3	18. Low capacity utilization	4	
19. Potential area like goods, parcels and tourism for more business development	5	19. High rate of absenteeism	3	
20. Higher train fares in some of the regions	3			

Table VI.
Factors for external strategic position

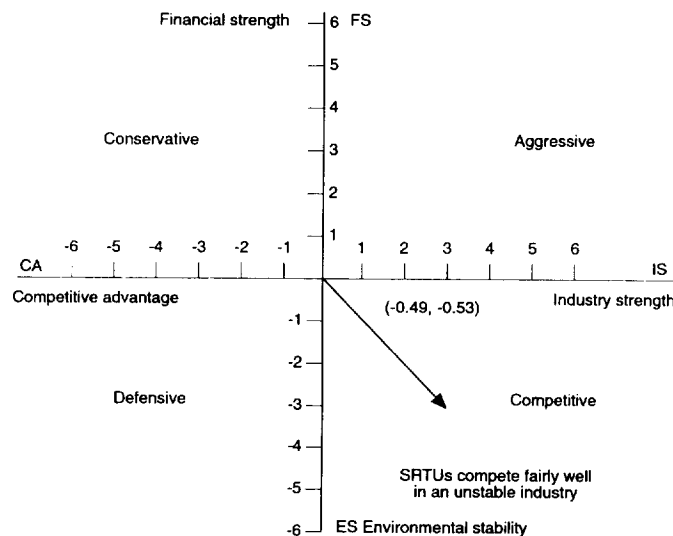


Figure 3.
Strategic position as viewed by executives

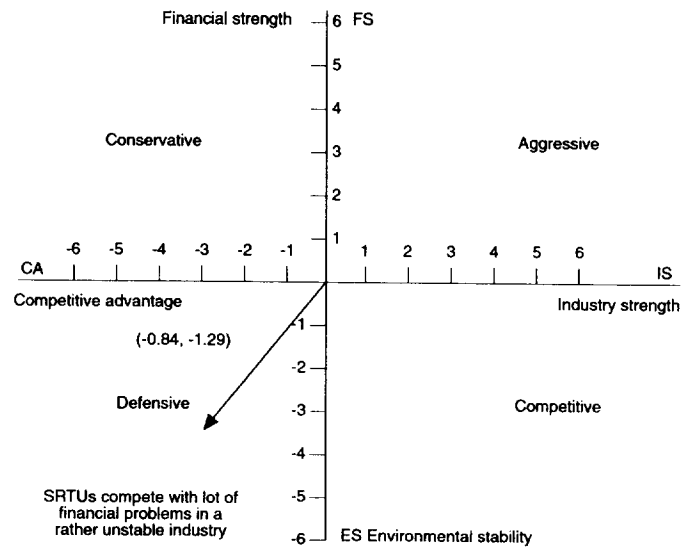


Figure 4.
Strategic position as viewed by academicians

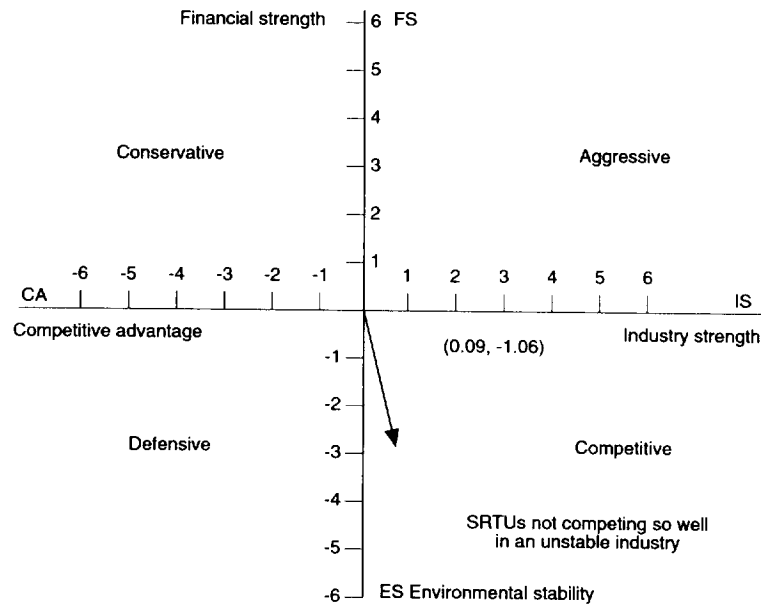


Figure 5.
Strategic position as viewed by both executives and academicians

not competing so well in a rather unstable industry, suggesting that competitive strategies would be more appropriate. They usually include backward, forward and horizontal integration, market penetration, market development, product development and joint ventures. Keeping in view the lack of capital and manpower required for backward and forward integration for SRTUs, the appropriate and relevant generic strategies would be market penetration, market development,

product development, concentric diversification and joint ventures. From their perceptions, it is observed that SRTUs predominantly lack marketing approach. There are various historical and political reasons for ignoring this important aspect of management. However, it is high time SRTUs realized the importance of marketing. In this context, the peculiar traits of transport services, while developing marketing strategies, need to be appreciated. They are discussed in the following section.

Strategy formulation

Nature of transport services

Transport services, like any other services, have the following traits:

- *They are intangible.* Unlike goods, transport services are intangible as they cannot be smelt, seen, tasted, touched or felt in advance. They are basically high-consumer contact services which require greater understanding of consumer psychology. In such services usually commuters look for signs of tangible benefits in those services. (In this article, the words consumer, customer and commuter are used interchangeably to mean an actual or a potential bus passenger.) An important aspect of transport services is that the commuters are seldom aware of being served well as: “the customers usually don’t know what they’re getting until they don’t get it. They will be aware of only failures and of dissatisfaction, not of success or satisfaction” [9, p. 97]. This aspect makes it vulnerable for the competing modes to devise alternatives. Hence, periodic reminders and reselling efforts to remind customers of how things go well when things really do go well have to be undertaken. In other words, the SRTUs should “tangibilize” the intangibles and promises into creditable expectations.
- *Production and consumption are inseparable.* The transport services in terms of seat kilometres are produced and consumed simultaneously. The commuters are directly involved in the production process, and hence a high degree of service provider-commuter interaction takes place. This affects the outcome of service quality and also creates uncertainty to service managers about the process time, service standards and commuter needs. The SRTUs have been ignoring this important dimension of transport services – that the crew and line staff are the image carriers of the undertakings. They failed to recognize that the skills of the workforce in such high-contact services are characterized by a significant public relations component[10]. Any interaction with customers makes the direct worker part of the service, and therefore his attitude can affect the customer’s view of the service provided. In most of the SRTUs, the customer-contact employees, namely the crew staff, are undereducated and undertrained, which has paid its price for the SRTUs in terms of poor public sympathy. Therefore, there is a need to develop task-oriented and technically competent service personnel by giving great input to marketing and inter-personal skills.

- *The service quality is variable.* Due to the intangible nature of operation, the variability in service quality in transport is inherent. The main reasons for this are the lack of precision in service output and difficulty in determining and implementing service specifications. The service personnel are subject to emotions, stresses, pressures and feelings and hence their performance tends to vary accordingly. They cannot match the consistency of machines. By “industrialization” of services, dependence on people can be reduced by substituting them with hard, soft and hybrid technologies[9]. For example, automatic ticket machines can create lesser inter-personal problems with commuters.
- *They are perishable in nature.* While goods are produced, services are performed. Since transport services are direct, they cannot be inventoried. Unused capacity in a transport service is like having a running tap in a sink with no plug; the flow is wasted unless customers requiring service are present to receive it[11, p. 5]. The inability to synchronize supply with the changes in demand poses many quality management problems. That is why service quality levels deteriorate during peak hour operations. Hence more emphasis should be given to demand management.

Future strategies

The above traits of transport services have to be understood clearly to formulate marketing strategies. By and large, the SRTUs lack customer orientation. The major failing of these undertakings is to be so complacent with their current operations that they no longer consider the evolving needs of customers. As a result, these organizations lost their share to other competing modes. They are unable to change dynamically with customer preferences as they are operationally bound. Hence the key tasks to be performed are to:

- identify various market segments;
- determine the uniformity of travel needs for each segment;
- develop marketing strategies for serving each segment’s special needs.

Over the years, the SRTUs paid attention only to tasks like vehicle specifications, mapping routes and schedules, etc., which are more operationally important, but pay very much less attention to changing needs. This operational, as opposed to customer orientation, did not effectively meet the needs of customers. The SRTUs have been functioning only by looking at the supply side parameters. But there is a need to view the transport business from both the demand and supply angle in the coming years[12].

Demand management

Demand can be shifted by adopting a fare-differentials policy. The telecommunications department in India has successfully implemented this strategy to use their capacities by charging STD (subscriber trunk dialling) calls differently in different time periods. In the UK, most of the transport operators adopt this strategy to

two passengers at off-peak periods. However, in India the SRTUs are unable to follow fare-differentials policy for various reasons as more often than not they are political decisions. This needs to be modified in order to use the capacity fully.

Developing non-peak demand is another way of tackling demand. The SRTUs could create demand during off-seasonal periods for tourism development, picnic trips, educational tours for educational institutions at concessional rates, offering contract tours for specific parties etc. Or alternatively, if slack time is available, the undertakings can make use of them more productively for training new employees and customer-contact personnel for better public relations, carrying out maintenance work, cleaning their premises, giving workers some relief so that they can prepare for peak times, etc. Creating advance booking systems will help in preselling the productive capacity.

Supply management

While managing the supply side, employing part-time staff for specific tasks can help in reducing staff costs. Labour intensiveness can be reduced by “industrializing” some of the day-to-day operations. Whenever and wherever possible the capacity can be shared. This will be very useful in inter-state operations where the SRTUs can share their capacity and other infrastructure like fleet, bus stands, fuelling stations, maintenance, etc. Instead of rivalry among themselves, providing an opportunity for other competing modes to exploit, the SRTUs should unite and develop some understanding among themselves at this time of crisis. While planning the infrastructure or any other facility, the future should be kept in mind. This “expansion-ante” approach will solve many problems in the future.

Hence the demand side should aim at increasing revenues through the existing delivery system and the supply side should focus on minimizing the costs needed to increase or decrease capacity. Besides, the following generic strategies need serious consideration in the light of the diagnosis:

- *Market penetration.* Market penetration strategies would help in seeking increased market share for the present type of services in the present market through greater marketing efforts. With the present delivery system the SRTUs should penetrate more and attract passengers from other competing modes.
- *Market development.* Market development strategies would help introduce the present types of services into new geographic areas through greater marketing research efforts.
- *Product development.* Product development strategies would help in increasing revenues by improving or modifying (developing) present types of services. A clear understanding of different market segments has to be developed to cater to the specific needs of those segments.
- *Concentric diversification.* Concentric diversification strategies would include adding new services but related to the existing types of operations. For example, the SRTUs can diversify into areas like goods transport,

courier services with their network of operations, tourism development, etc. This would require future changes in the legal framework which stifles SRTUs on such moves.

- *Joint ventures.* Joint venture strategies arise when two or more organizations work on a project.
- *Cost leadership.* With proper management interventions, SRTUs should achieve and maintain a competitive advantage through cutting down costs and achieving economies in operation. Since the pressure of privatization comes mainly from the perceived inefficiency of operations and failures to generate surplus, cost leadership strategies are of great importance [13].
- *Turnaround strategies.* From the performance of SRTUs and the analysis, we can clearly see the danger signals in terms of decreasing share of SRTUs, declining rates of revenues and profitability, inadequate reserves for reinvestment for replacements and augmentation, paucity of funds for new ventures and diversification, lack of vision, overly inactive boards and inbred management which feels nothing can be learned from outsiders, professionals and others which usually warrant turnaround strategies. Extraordinary powers must be granted to those responsible for the turnaround. Some of the strategies include retrenchment, options in terms of cost cutting, asset reduction, revenue maximization or a combination of the three depending on the trade-offs, structural changes, etc. The Rajasthan State Road Transport Corporation has recently experimented with the conversion of depots as strategic business units, totally abolishing the "division tier" in the overall organizational structure.
- *Selective franchising.* Franchising offers access to capital investment at little risk and enables cost sharing, economies of scale due to increased size, motivated management and positive image. Some SRTUs like Andhra Pradesh State Road Transport Corporation (APSRTC) have been experimenting with similar types of strategies, though not exactly franchising, where the fleet of private operators is run on hire with APSRTC.

Basically, a good market intelligence system carrying out regular market research studies with transport planning approach would enable SRTUs to specify the areas for new businesses and new services required. Most of the private sector companies have done this through their corporate planning staff. But this culture is yet to find importance in SRTUs.

Strategy implementation

To ensure that the planned results of the strategic decisions are realized, there should be a strong bias for implementing the strategies evolved through this process. Successful implementation requires reshaping the formal structure of the organization, strengthening informal relationships, and initiating a process of motivation and control (which provide incentives and measure results) to the particular needs of the strategies. The first step in this direction will be to identify

the activities, decisions and relationships critical to accomplishing the strategy. The second important step will be to select the best people to implement them. There are different types of managers with differing managerial styles. They must adopt their skills to suit the operation and working environment in SRTUs. Managers best suited to handle specific business situations should be identified and selected. SRTUs are yet to firm themselves up on these lines since qualified graduates have yet to enter SRTUs in adequate numbers. The third step will be to introduce reward systems, as managers, and employees in general, tend to do what they are rewarded for doing. Appropriate compensation can be worked out for different types of tasks to be performed.

Conclusion

All along, SRTUs have been functioning at the will of the stakeholders without a strong pull towards well-chalked-out strategic direction. As the interests of stakeholders were often in conflict, there was a tendency to stay put. The time has come for SRTUs to start redesigning themselves and to think strategically, rather than operating in an ad hoc manner. The views of the respondents confirm this point of view. The diagnosis shows clearly the need for competitive type strategies which require a marketing approach and professional management[14].

The SRTUs are state owned and run for the public. Unless they develop a delivery system that is responsive to diverse individual needs, individuals will start opting for solutions which may not meet social goals. If public transport has to be run successfully by SRTUs, they must be allowed to change to match changing conditions. If the government restrictions, control and interference inhibit change and discourage innovations, creativity and professionalism; if the unprofessional governing boards stifle services; and if the narrowly defined inward looking operating priorities of the SRTUs protect the age-old practices for long periods of time, there is no role for marketing since the services cannot be geared to keep pace with evolving consumer needs[15].

But if the customers and social needs become the focus of public transport, then marketing will be the key function in the SRTUs' and the government's efforts to serve the public effectively. It is to be appreciated and understood that the issue of ownership confronting the SRTUs and the government as to whether to nationalize or to privatize is less important. The pressing need is to improve and add to the existing capacities by strong professionalism and managerial vision in making SRTUs competitive, efficient and financially viable.

Notes and references

1. Padam, S., "State transport – the new economic compulsions", *The Economic Times*, 11 June 1992.
2. National Productivity Council Research Division, "Performance of state road transport undertakings in India", *Productivity*, Vol. 34 No. 1, April-June 1993, pp. 137-55.
3. World Bank, *Trends in Developing Economies – 1992*, A World Bank Book, Washington DC, 1992.

4. Provisional figures from the data bank of the Central Institute of Road Transport (CIRT), "Performance of state road transport undertakings for the year 1992-92 and 1992-93".
5. Padam, S., "STUs need strategic management", Editorial, *Journal of Transport Management*, Vol. 17 No. 2, February 1993.
6. Digman, L.A., *Strategic Management – Concepts, Decisions, Cases*, Business Publications Inc., Plano, TX, 1986.
7. Rowe, A., Mason, R. and Dickel, K., *Strategic Management and Business Policy: A Methodological Approach*, Addison-Wesley, Wokingham, 1982.
8. David, F.R., *The Fundamentals of Strategic Management*, Merrill Publishing Company, Columbus, OH, 1991.
9. Levitt, T., "Marketing intangible products and product intangibles", *Harvard Business Review*, May-June 1981, pp. 94-102.
10. Chase, R.B., "Where does the customer fit in a service operation", *Harvard Business Review*, November-December 1978, pp. 137-42.
11. Lovelock, C.H., *Services Marketing*, Prentice-Hall, Englewood Cliffs, NJ, 1984, p. 5.
12. Sasser, W.E., "Match supply and demand in service industries", *Harvard Business Review*, November-December 1976, pp. 133-40.
13. Satyanarayana, Y., "Liberalisation and competitive strategies – case of state transport undertakings", *Journal of Transport Management*, Vol. 17 No. 6, June 1993, pp. 357-65.
14. Vijayaraghavan, T.A.S. and Padam, S., "Need for strategic orientation in state transport undertakings – a diagnostic approach", paper presented at the Third Annual Conference of Association of Management Development Institutes in South Asia held at Dhaka during 4-7 February 1994.
15. Davis, F.W. Jr, and Mundy, R.A., "Public transportation marketing", in Gray, G.E. and Hoel, L.A. (Eds), *Public Transportation – Planning, Operations and Management*, Prentice-Hall, Englewood Cliffs, NJ, 1979, pp. 492-508.
16. Zadeh, L., "Fuzzy sets", *Information and Control*, Vol. 13, 1965, pp. 338-53.
17. Kacprzyk, J. and Yager, R.R., "Linguistic quantifiers and belief qualification in fuzzy multicriteria multistage decision making", *Control and Cybernetics*, Vol. 13, 1984, pp. 155-73.
18. Rao, J.R., Tiwari, R.N. and Mohanty, B.K., "A method for finding numerical compensation for fuzzy multicriteria decision problem", *Fuzzy Sets and Systems*, Vol. 25, 1988, pp. 33-41.

Appendix. Fuzzy sets approach to arrive at consensus rating

The respondents to the questionnaire are executives and academicians whose judgements on strategic issues of State Road Transport Undertakings are, by and large, qualitative. Hence, quantifying such qualitative aspects of an organization is a complex task, especially in arriving at a consensus opinion on each aspect. A methodology using the concepts of fuzzy sets[16] and the notion of fuzzy logic developed in[17] is introduced here on the quantifiable aspects of strategic management. (Literature on fuzzy sets and some relevant approaches can be seen in [16-18]). For this the following fuzzy subsets are defined.

$$\mu_{\text{most}}(x) = \begin{cases} 1 & \text{if } x \geq 0.9 \\ \frac{x-0.1}{0.8} & \text{if } 0.1 \leq x \leq 0.9 \\ 0 & \text{if } x \leq 0.1 \end{cases} \quad (1)$$

$$\tilde{\text{RATING}} = \left\{ \begin{matrix} \mu_F(x_i) \\ x_i \end{matrix} \right\} = \left\{ \begin{matrix} 0.15, & 0.30, & 0.45, & 0.60, & 0.75, & 0.90 \\ 1, & 2, & 3, & 4, & 5, & 6 \end{matrix} \right\} \quad (2)$$

In equation (1), the concept of consensus in the fuzzy sense is defined as “most”. This is well defined in a range to depict decision realities. In equation (2), the fuzzy subset of rating RATING is defined, though subjectively, the objectivity is well represented because the fuzzy sets are always in a range (a range of discrete points) and little deviation from reality will not change the end result very significantly.

In strategic management issues, it is rather complex to quantify the qualitative judgements on the business environment. It becomes more complicated when the necessity arises in arriving at consensus opinion on a given aspect. However, the methodology introduced here based on fuzzy sets approach resolves the complexity. The procedure is on the following lines.

From the fuzzy subset RATING, we have,

$$A = \sum \mu_F(x_i) * N_i / \sum N_i \quad (3)$$

Where A is interpreted as the combined rating of a group for a question (or average rating score) and N_i refers to the number of persons responded with a rating of x_i . The factor $\sum N_i$ in the denominator is used to normalize the score. To reach a consensus opinion, it is necessary to derive the compatibility of A to the fuzzy subset “most” in equation (1). This is as follows

$$\mu_{\text{most}}(A) = (CO) \quad (4)$$

where (CO) is consensus opinion expressed with the “most”. Using equation (2) again for the (CO) , the consensus score for a question in the questionnaire is obtained. The methodology introduced here is applied for all the questions in the questionnaire using a computer programme and applied for both the groups namely executives and academicians separately. Weighted scores proportional to the sample are used to arrive at the combined scores for both the groups.