

THE METHODOLOGY FOR THE CREATION OF AN ADMINISTRATION MODEL FOR LOW CAPACITY PUBLIC MEANS OF TRANSPORTATION ADMINISTERED BY COOPERATIVES

*Patrícia Bassalo Menezes
Faculdade de Ciências Sociais e Tecnológicas - FACITEC
Adelaida Pallavicini Fonseca
Universidade de Brasília - UnB*

ABSTRACT

The proliferation of passengers' informal means of transportation has become a nationwide problem, independent of the size, socioeconomic characteristics or geographical location of cities. Giving in to strong pressures, most cities that previously had some kind of informal means of transportation, started to regulate and legalize that type of activity, which has been run by individual owners organized into cooperatives. Generally speaking, the informal transportation services have high popular acceptance, however, the competition with bus operating companies and conflicts with governmental authorities make these transportation operators seek higher sustainability to the services they offer. Thus, this study sought a methodology for creating an administrative model, in which the urban transport cooperatives may consolidate themselves, seek larger control and performance on the quality of the services rendered to users, in addition to maintaining a satisfactory economical-financial balance for the cooperated operators and thus, improve their image towards the managing agency.

1. INTRODUCTION

The public transportation done by low and average capacity vehicles is actually a fact in several Brazilian cities. According to Costa et al. (1999), the service run with minibuses, vans, kombis and even motorcycles, attract an increasingly larger group of users, seeking speed and comfort among other aspects. This type of alternative service, which in the nineties and in the early new millennium has been spread around all cities illegally, has been going through a legalization process. That is due to the fact that several regulation changes have occurred, in addition to the integration with the different means of collective public means of transportation in those cities, in

an effort to rationalize resources and improve services to users. The main kind of association sought by the autonomous operators of that type of service, has been organizing themselves into cooperative groups.

The integration of the several systems of collective public transportation in a city, including the alternative means of transportation, has in many cases, occurred mainly due to the political good will of the different parts, who plan, manage and operate these systems, than to the inner merit of the action plan to be implemented. However, it is worthwhile pointing out that some integration experiences have been positive and others have failed for reasons still to be understood. That is also the case with the cooperatives of the alternative means of transportation, since some are going through a consolidation process, and others are in a crisis, due to a lack of definition from the conceding agency and others have simply not been able to survive in the restructuring and integration processes of the public transportation systems, which are happening in certain Brazilian cities, for example, in Goiânia.

Still in the early millennium, the alternative means of transportation cooperative group from Goiânia presented conditions to consolidate itself as an organization, since it was investing strongly in the modernization of the fleet, acquiring new low capacity vehicles, which were more comfortable and safer for users. The investments also reached the assembly of a computer science area, equipped with computers and specialized personnel in the area. In addition, a team to manage, operate, control and supervise the whole system was being formed. However, the cooperative failed. Based on interviews with several individuals involved in the case, it was concluded that the main reason was the difficulty the cooperative found in negotiating the fare compensation with the regulating agency, as well as, facing the challenge of planning a differentiated service in a short period of time, which was not competitive with the system being implemented for the remaining cooperated individuals (290 operators out of 740), who did not join the integration system. The cooperative did not have a consolidated organizational structure capable of negotiating and imposing conditions, nor planning services or opening new markets for the alternative means of transportation.

1.1. The Alternative Means of Transportation Situation Analysis

From the analysis made on the alternative means of transportation in several cities, it can be concluded that the owners of low capacity vehicles, motivated by aspects, which are faced by the urban public means of transportation, have formed working cooperative associations to adapt to the market regulation. However, this fact has not guaranteed the cooperative market stability, nor has it helped consolidate these cooperatives into an organization. The cooperatives, as an organizational structure within a market in crisis and with several competitive forces acting around them, are very fragile. In other words, they compete directly with the operating companies of the conventional means of transportation, and they also compete with the informal means of transportation service.

The conventional means of transportation operation differs a lot from the way the transportation cooperatives work. The operating companies supposedly work with a scale economy; they present a real clear definition in their organizational structure and in the different desktop functions. During the last 20 years, the conventional means of transportation operating companies

have been going through several problems, having the drop of demand as one the biggest real problems. Thus, they have felt the need to seek for greater training of their technical group in high school and college levels; the adoption of certain administrative practices, which may contribute to their business administration processes; the acquisition of technologies to improve their administrative and operational systems and; the implementation of information systems, which may integrate them and lead them to communicate with the different administrative levels (high, average and operational).

With those business changes, they have managed to give certain flow and flexibility to decisions made and to adapt, without much trauma, to the internal and external changes of the public means of transportation sector. Although some companies may not be really structurally solid, they can have as advantages to the “alliances” with other companies in the sector, whether to participate as a political force in face of the decisions of the regulating organs, to demand subsidies or increase fares, or to mobilize actions of the business group’s interest. Another advantage of the public means of transportation business groups is to work with the clearinghouse, allowing them certain financial stability, although they operate with deficient lines.

The real situation of the public transportation cooperative is totally different. Decision making in cooperatives is much slower, or bureaucratic because it has to pass several channels of decisions until it is approved by the association. Although an entire defined organizational structure exists and an administrative council commands it, the researched cooperatives do not possess managerial, administrative and operational tools capable of making actions dynamic, in order to give fast answers and immediate results. For these reasons, the conceding power does not trust the information they are transmitted by the cooperatives, which is the case of the managerial agency in Brasilia.

Another disadvantage of cooperatives is that they do not work with a compensatory fare system, which means, they have cooperative associates operating with profitable lines and others operating non-profitable lines. Another limiting aspect is that they do not work with a spare fleet or other operational outlines for possible unexpected drawbacks. Many cooperated associates join the cooperative as a way of working in a regulated way, to obtain financing support to purchase the vehicles, parts and components, to have good maintenance and repair the vehicle and to have juridical support.

1.2. The Main Problems concerning Cooperative Management of Alternative Means of Transportation

Analyzing the situation of the transportation cooperatives from a deeper point of view, it is observed that there is a problem of lack of managerial culture and indifference in cooperating with their own cooperative group. Some associates only accept to join the cooperative to win the right of exploring a service, but that does not mean they agree and support the actions of the actual administrative council, much less do they agree in being ruled by the statutes and regiments of the cooperative, which creates various different power forces within the own cooperative.

Based on research done in some Brazilian cities, the most common problems of these cooperatives have been: the inexistence of an information system, which may enable all the information reach the cooperated associates, so that they may understand the cooperative's management real situation and, therefore, have a more active participation in the development of their businesses; lack of a strategic planning development, with appropriate performance indicators and; no application of the modern administrative tools.

Therefore, one of the main questions to be raised would be: Which is the mission and objective of these means of transportation cooperatives within the planning context of the collective means of transportation system? Would their mission be to compete? Or would it be just to represent a part of an integrated means of transportation system? Would it be to be simply a feeding part of a main system? Or would it be to render a differentiated and quality service? Would it be to protect a working class? Or to subsist in the transportation market at any cost?

Knowing how to answer these questionings would be the first step towards the accomplishment of the strategic planning for the alternative means of transportation cooperatives; thus, they would find their own identity. Therefore, it is important that cooperatives have a clear understanding of their reason for existing, in order to have more chances of obtaining success and strengthening their organizational structure, allowing better returns to their cooperated associates, greater credibility towards the conceding power and users trust.

Therefore, the planning process of a transportation system cooperative should begin with the strategic planning, because it presents larger inclusion in the managerial and administrative context, allowing the development and maintenance of a strategic direction, which aligns the goals and the resources of the organization in face of the constant market changes. From this planning, the cooperatives would be capable to establish strategies and business invigoration policies, as well as the relationship with other cooperatives and companies of the sector, managing organs, agencies, transportation offices and others. In addition, they would be able to obtain greater interaction with the external factors, which are not controllable by them.

2. THE SITUATION OF THE ALTERNATIVE MEANS OF TRANSPORTATION SYSTEM IN THE FEDERAL DISTRICT

In the Federal District, the autonomous public transportation operators for low and average capacity vehicles were organized in cooperatives and they joined the Federal District Alternative Transportation Union (SINTRAFE). The legalization of this urban transportation service, called the Federal District Alternative Public Transportation System (STPA/DF), happened through a bidding process, in which the vehicles became part of the Federal District Public Transportation System (STPU/DF).

Brasilia, for being an administrative and planned city, has some characteristics that differ from the other cities. The generating job pole is concentrated in the "Piloting Plan", but most employees live in the outskirts of the capital (satellite cities), which led the planning of direct lines and with great extensions. But with the centers development, other transportation needs have aroused and STPU/DF has apparently not accompanied those changes; thus, generating the population a deficient transportation service.

The alternative means of transportation advance and the implementation of the subway, added to an old transportation system, resulted in transforming the public transportation in Brasilia and suburbs, one of the most disorganized in the country. In addition, there is a great number of irregular vehicles, called "pirate" and chartered transportation. The Transportation Secretariat, along with the managing agency, the recently created "DFTrans", is elaborating a project and a new master plan to integrate the whole Federal District Public Transportation System.

The restructuring of the DF Urban Public Transportation System seeks the integration of the transport services done by the conventional bus lines, alternative means of transportation and subway. The new proposal has resulted in many studies of financial organs, which may be applied in the system's integration system, besides the integration with the subway system. This proposal has generated concern from STPA/DF operators, since they intend to enter the competition with conventional companies in the dispute for lines. Thus, some adjustments in their operational, juridical and financial models will be made necessary. Therefore, it is the SINTRAFE directors consensus that the adoption of a well structured and appropriate managing model, to the cooperative's peculiar characteristics, which will be the best alternative for different interests that may be generated from part of the cooperated operators, and for its strengthening as the transportation service operating enterprise.

3. A METHODOLOGY PROPOSAL FOR AN ADMINISTRATION MODEL

Based on the System General Theory, on the Administration Theory and on the Cooperative Theory (Oliveira, 2001) one may reach a concept of a cooperative managing model. Managing may be considered as the interactive process of developing and operating the planning, organization, direction and results evaluation activities. Therefore, an administration model can be considered as structured, interactive and consolidated, which develops and operates the planning activities, organization, direction and evaluation of results, seeking the growth and development of an organization.

The administration model is constituted of seven components that act in an interconnection and interactive way. Administrative instruments consecrated by the companies, which influence and/or are influenced, directly or indirectly, the development and operation of the referred model represent the components, which may be seen in Figure 1. The components, acting interactively in certain moments, transform themselves into integrating parts of the managing system, consolidating a global system.

Management Model						
Strategic Components	Directive Components	Behavior Components	Evaluation Components	Change Components	Technological Components	Structural Components
- Strategic Planning - Total Quality - Total Marketing	- Leadership - Communication - Supervision - Coordination - Decision - Action	- Capacity - Performance - Potential - Behavior - Commitment	- Indicators - Follow up - Control - Development	- Resistance - Attitude towards results - Team work	- Products and Services - Process - Knowledge	- Organizational Structure - Managing Information

Figure 1: A Management Model and its Components

3.1. A Proposal for structuring the planning process of the urban public transportation cooperatives

The basis for the cooperative strategic planning, once defined its mission and objectives, should be accomplished, based on a deep analysis of the opportunities and threats or limitations that exist in the cooperative external environment. It should analyze the strong and weak points of the internal environment; formulate strategies (in the enterprise level, in the business level units and in the functional level), which may allow the cooperative to combine the positive and negative points of its organization as a whole, with the opportunities and threats of the environment; and to structure a strategic control system to guarantee the general objectives of the organization are reached.

Once structured, the strategic planning should define the tactical planning. It is good to emphasize that the strategic planning is more turned towards the strategic dimension of the organization, referring to its objectives and effectiveness. The strategic decisions usually have longer temporal reach and high-leveled impact and irreversibility (Mintzberg, 2000).

The tactical planning emphasis how the specified objectives should be reached, referring to the enterprise components and its efficiency; therefore, the tactical decisions only affect a part of the organization and it is related to short term goals. The tactical planning will have as its objective, to optimize each area of the cooperative result, which means, working with the decomposition of the objectives, strategies and policies established in the strategic planning will be made necessary.

The public transportation cooperative operational planning aims at searching for the optimization of the existing system, through the simulation of the possible future sceneries, through the analysis of the current system and of possible interventions; always bearing in mind the conciliation of the conflict of interests among the various intervening elements of the system, which is, the users, the operators, the public power and the community.

3.2. A proposal of strategic planning interconnection models to other planning levels

It is possible to consider a structured connection with the strategic planning as the best way to elaborate and to implement the tactical and operational planning in the cooperatives. Below, some proposals of strategic planning interlinking models to some administrative allocated tools in the tactical and operational planning, are presented.

3.2.1. The Interconnection of the strategic planning to the organizational structure

Figure 2 presents a proposal of strategic planning interconnection to the cooperative organizational structure. The purpose of such a procedure is to identify the possible contribution of each organizational unit for the cooperative objectives that should be established in the strategic planning. Based on the strategies, the programs and projects to be developed will be identified, including the definition of its responsible members, who will be allocated in the cooperative organizational units.

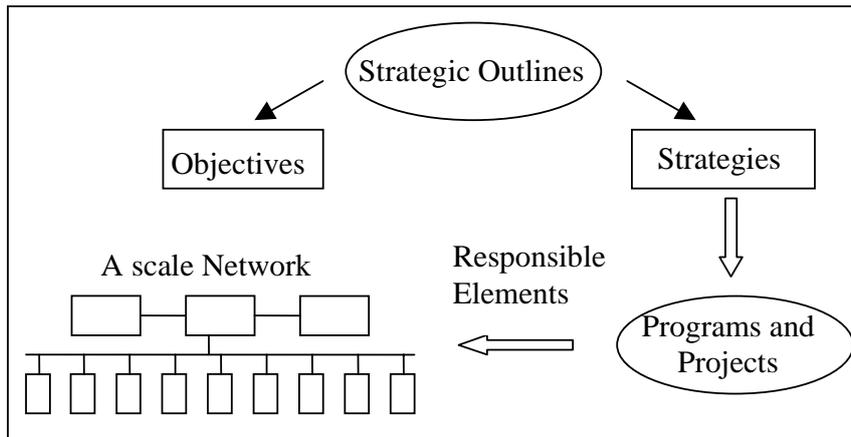


Figure 2: The strategic planning interconnection to the organizational structure

This interconnection crossing, resulting from objectives and strategies will have its allocation in the organizational structure, based on everything which was discussed along the cooperative strategic planning process.

3.2.2. The strategic planning interconnection to the cooperative's main processes

The interconnection proposal of the strategic planning to the cooperative's main processes, such as production and quality, is presented in the situation in Figure 3.

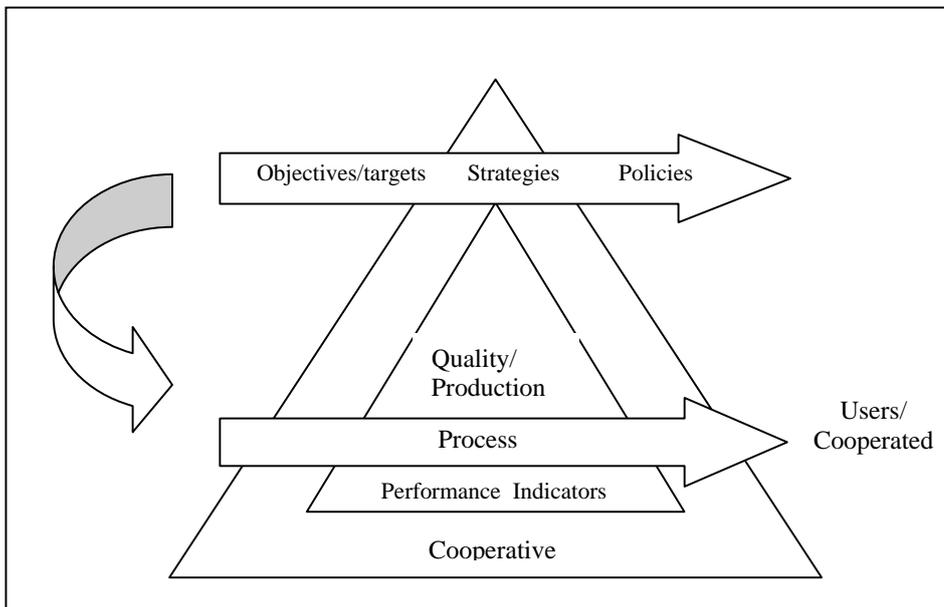


Figure 3: The strategic planning interconnection to quality and production

The objectives considered by the cooperative in the production and quality processes will consolidate themselves towards the transport users. The goals will be allocated during the

production process, contributing to setting the performance indicators. The strategies represent the several actions, which will be developed and the policies represent the support and the parameters for decisions to be taken.

The concept of quality, turned towards the user's satisfaction, prioritizes the organization's need to pursue an operational continuity, so that it may respond to the consumer's expectations. Obtaining business results and readjusting them to the internal processes, accomplish the organization's idea of quality, which is enabled by the rational use of human resources, technological and financial materials. According to Figueiredo (1993), the quality of the business process can be measured by the following parameters:

- Efficiency, concerning the use of resources in the production process or the enterprise's general infrastructure;
- Effectiveness, aiming at the satisfaction level maximization and the consumer's interest as a result of the final production of goods and services of all the enterprise or intermediate results from various areas;
- Service production process safety.

In the production of a service, a special interface with the user happens, where production and consumption happen simultaneously, placing the user within the production process itself. But if there is no consumption, there is no production; even if the service producer has mobilized resources for such, and that happens when buses circulate empty. Therefore, the evaluation of the process quality involves support and interface activities with the user, demonstrating the difficult art of resource adaptation in order to reach the results intended. An enterprise's production process is conditioned to two relevant factors, technology and the organization's immediate external agents. Technology has direct effect on the work process and, consequently, on the enterprise's structure. Concerning the external agents, the urban transport operating companies come across the peculiar conditions demanded.

3.2.3. The strategic planning interconnection to evaluation performance and training analysis

Another interconnection model, which may facilitate the development of the tactical and operational planning of the cooperatives, is the performance evaluation aspect and training analysis, as presented in Figure 4. The objectives should be decomposed and allocated into several organizational units of the cooperative and, later, decomposed again and interlinked with positions and the several professionals functions allocated in the referred organizational unit. Later, two works will be elaborated: performance evaluation and training analysis.

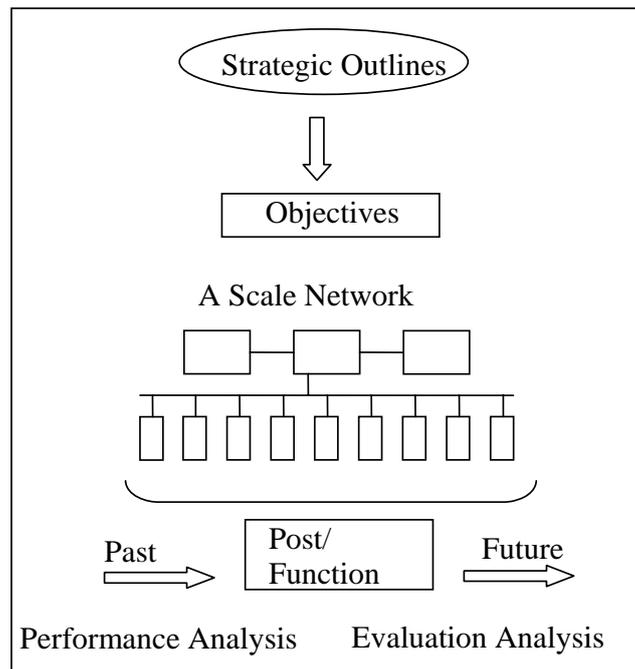


Figure 4: The strategic planning interconnection to evaluation performance and training analysis

Users are now demanding even better quality of the presented services, and it is in that scenario that transportation operating companies must introduce a new concept of urban public means of transportation services through performance evaluation. For a detailed evaluation, it is also necessary to check on productivity and operational efficiency. Thus, the following parameters should be analyzed:

- Service production efficiency;
- Vehicle breakdown reduction;
- Trust, and user safety.

Aiming at obtaining efficiency levels, effectiveness and humanization in the public transportation operation, the cooperatives should provide their professionals with opportunities for qualification. The development of training programs generates real gains to the group, which may be demonstrated through results that guarantee the user the best service, setting the company in the market and providing better competitiveness conditions and greater profitability.

In a study accomplished by EMTU/Recife, in the urban transportation operating companies, it was highlighted that employees who have participate in training programs, have presented:

- Improvement toward user assistance
- Improvement in terms of employee and boss relationship
- A reduction in number of accidents caused by the companies' drivers
- Employee satisfaction
- Motivation to work

- Communication improvement
- Better driving
- Attendance improvement

3.2.4. The strategic planning interconnection to the managerial information system

This model is inherent to the interconnection to the managerial information system, as presented in Figure 5. Market information, structured into cooperative businesses, are allocated into the organizational units through several established processes, such as production, quality, and others, whose interconnections to the strategic planning have already been presented.

The information system should present agility and flexibility characteristics to allow it overcome deficiencies found in the cooperative. Thus, a group constituted of specialized technicians in urban transportation and a systems analyst should be formed, with the objective of creating a system of information capable of guiding decision taking as for planning, controlling, evaluation and the STPA operation follow up, and, therefore, a system to assist the whole process which involves the alternative means of transportation, from the programming of lines, to operational evaluation, operational performance and the supervision.

In order to facilitate its development and implementation, the system should be constituted of cadastral files and operational information collected in field. The cadastral files should be maintained directly by each responsible unit for the information, and they should be detailed later. The operational information should be collected through control records in the terminals. This information will constitute almost all the totality of the data, which should generate operational reports.

The information system may be constituted of subsystems for its best performance. Among the main ones it is proposed:

- A record system;
- An operational performance system;
- A demand follow up system;
- A cost follow up system;
- A Financial sharing system; and
- A line operational evaluation system.

The record should supply the basic information on the STPA, such as: operational areas, lines, fares, itineraries, fleet, types of tires, chassis and others. The input information will be typed originating operational lists and reports.

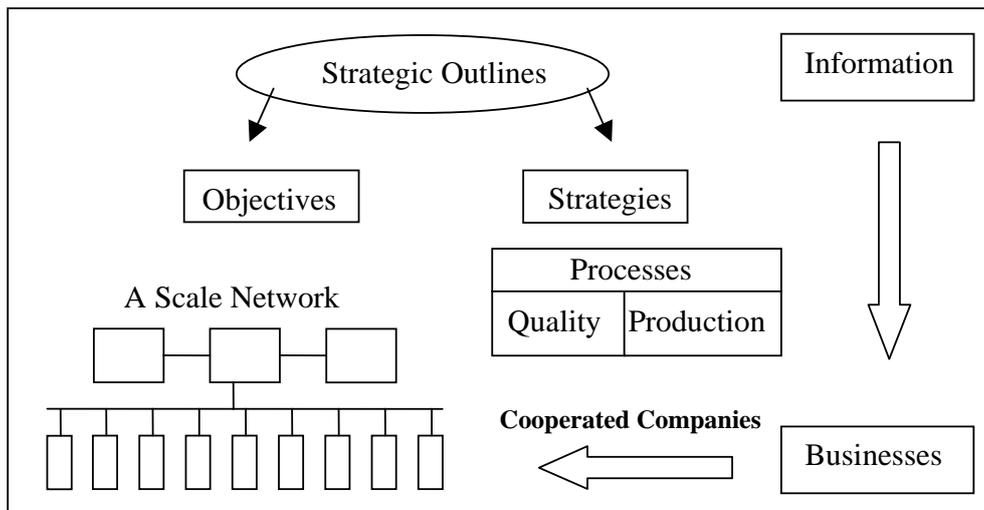


Figure 5: The strategic planning interconnection to managerial information system

In the operational performance, daily reports should be emitted, so that they may contain information related to the operation lines: number of accomplished and programmed trips, established and used fleet, passengers transported per trip and total number of passengers per line. From this report, the line operational performance evaluation, compensations between incomes and expenses among lines, a notification for the non-accomplishment operational programming and information supply on the STPA operation.

The main objective of the demand follow up subsystem is to differentiate the amount of transportation allowance, student transportation allowance, free passengers and passenger index per kilometer (IPK). This information will be used in the compensation calculation between income and expenses among the lines.

The cost follow up subsystem should contain general information on the chassis input costs, vehicle framework, driver's salaries and others.

The financial sharing subsystem should contain information on each line's operational costs, in order to accomplish the compensation between incomes and expenses for each line.

In each line operational evaluation subsystem, reports will be emitted with information on the terminal departure hour, time stopped, intervals between terminal departures, passengers transported in the trip and time spent on the trip.

3.2.5. Strategic planning interconnection to technology

The last model proposal presents a vaster interconnection, which corresponds to the technological level absorbed by the cooperative, as evidenced in Figure 6.

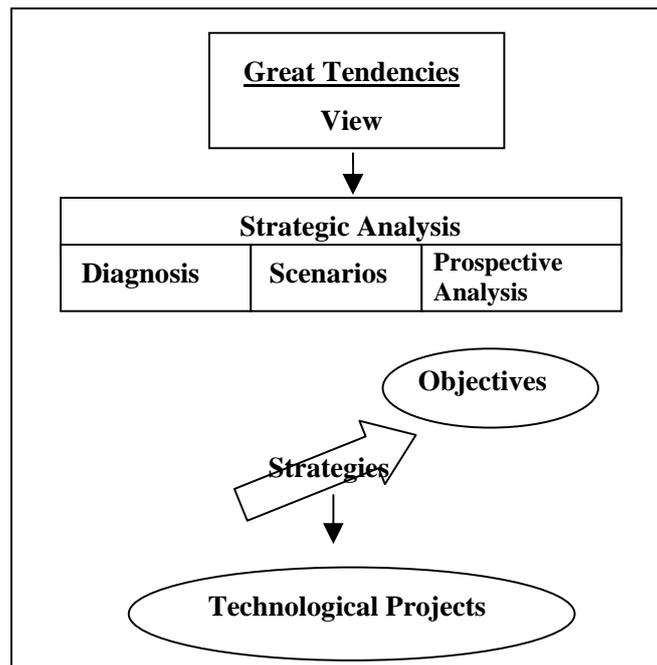


Figure 6: The strategic planning interconnection to technology

Therefore, one may have a general and integrated view, which will allow structuring the whole development plan and operating each component of the referred strategic planning model in the cooperative.

3.3. Criteria definition to develop and apply the administration model in the urban public transportation cooperatives

According to Oliveira (2001), the cooperatives need to adopt some criteria to better develop an administration model. In the studies accomplished in the urban transportation cooperatives, deficiencies they have in the execution of administrative methods can be noticed, which could allow them better interaction with cooperated companies, transportation users and the managing agency.

As previously pointed out, many of the problems presented by the transportation cooperatives are due to management cultural problems. Thus, some basic and fundamental action lines are proposed. An urban transportation cooperative should put these actions into practice in order to obtain success in the planning. These are:

- a) Have real knowledge and understanding of the management model expression;
- b) Immediately begin the operation process of the administration model, once the model applied in an appropriate way, can consolidate a situation of real, sustained and durable competitive advantage for the cooperative;
- c) Have the global scope of cooperative administration model

- d) Have the management model supported by all the systems and administrative instruments belonging to the cooperative;
- e) Have a developmental methodology and the implementation of the management model in the cooperative;
- f) Have clear and comprehensive definitions of the expected results;
- g) Let the cooperated companies direct the change provoked by the management model in the cooperative;
- h) The management model should also be focused on the possibility of developing new service offer proposals to the cooperative;
- i) Have real involvement of all directors and the cooperative presidency;
- j) Constantly search for total quality in the cooperative managing model;
- k) Be sustained by the spirit of assistance and cooperation.

4. FINAL CONSIDERATIONS

The work scope allowed the evaluation of how the low capacity urban public transportation cooperatives have been operating in Brazilian cities, and in this evaluation, along with the SINTRAFE operation study in the Federal District, some important and conclusive points for the development of the methodology of the proposed model were pointed out.

The consolidation of the urban public transportation operating cooperatives represents a significant step in the creation of basic conditions in the search for efficiency. The great majority needs to get organized, to develop human resource activities, to perfect the operational administration, to develop information technologies, to improve the maintenance section, among other features. In addition, one cannot stop mentioning the need of quality program and productivity investments for the cooperated companies. It can be said that all these points influence the demand capture directly, showing its level of service and its performance.

When recognizing that the service quality depends on the good assistance toward the demand and the creation and use of mechanisms, which may allow the adaptation to changes with greater competence, the urban transportation cooperatives will be giving a great step towards recognition as companies offering quality service to the public transportation system.

BIBLIOGRAPHICAL REFERENCES

- BARRETO, A. C.; D. M. CORDEIRO; A. BRASILEIRO; A. FITTIPALDI; D. PASSOS e E. SANTOS (1998) *A câmara de compensação tarifária como instrumento incentivador para as empresas operadoras reduzem custos?*. Transporte no grande Recife: uma questão de compromisso. Volume 1, EMTU/Recife. Recife.
- COSTA, B.; L.A. LINDAU; C. NODARI; L. SENNA e I. VEIGA (1999) *Ônibus e lotação, uma experiência de convívio regulamentado em Porto Alegre*. Viacção ilimitada: Ônibus das cidades brasileiras, São Paulo, Cultura editores associados.
- FERREIRA, E. A. e R. G. RIBEIRO (2002) *Metodologia para cálculo dos custos do Transporte Coletivo Urbano de Baixa Capacidade operado por cooperativas*. Anais do XVI Congresso de Pesquisa e Ensino em Transportes, Volume 2. Rio de Janeiro.
- FIGUEIREDO, A. S. (1993) *Informações Gerenciais: um instrumento de gestão de produtividade e qualidade no transporte por ônibus*. Dissertação de mestrado, Universidade de Brasília, Brasília.
- FREITAS, M. B. e J. E. A. COSTA (2001) *Repartição da receita financeira em sistemas integrados de transporte público*. Anais eletrônicos do 13º Congresso Brasileiro de Transporte e Trânsito.
- GUERRA, J. O. e R. BALASSIANO (2002) *Sistemas de Transporte de Baixa Capacidade: um conceito de utilização*. Anais do XVI Congresso de Pesquisa e Ensino em Transportes, Volume 2. Rio de Janeiro.
- NTU (2001) *Transporte informal no Brasil: riscos e propostas*. Pesquisa NTU. Web site: www.ntu.org.br.
- MINTZBERG, H.; B. AHLSTRAND e J. LAMPEL (2000) *Safári de estratégia: um roteiro pela selva do planejamento estratégico*. Porto Alegre, Bookman.
- OLIVEIRA, D. (2001) *Manual de Gestão das Cooperativas*. São Paulo, Editora Atlas.