

A tool for decision support: the DSS M.O.V.E. (Organizational Model and enhancement of public transport services)

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A decision-making process consistent with the mentioned requirements needs the interaction of the actors of the TPL reformed: the regulator, the regulated; to start from tested operating program, or a draft operating program called for tender by the Authority, benchmark for the offers of the companies. The draft program should be drawn up on the basis of an estimated potential demand, which summarizes the objectives of regional policy in the field, under the constraint of the resources made available by the Region.

The terms of the comparison between the programs making up the companies' offers and the base program called for tender are represented by respective income statements and balance sheets. Those drawn up by the regulator on the basis of objective conditions of management, the ones drawn by the individual operators on the basis of actual conditions. Both the deals and the proposal, in order to be comparable with each other, must use the same units of measurement and the same configuration, even if the processes that lead from the two extremes of the system to the same configuration differ in some way.

From the Region side, indeed, the starting point is made by crossing potential demand and available resources, depending on which is built the program to be put out to tender in terms of the number of seat-km to deliver on a given network; physical quantities are then transformed into economic values (price per km), through a process of development that takes into account both performance standard (target values), and those actually expressed by companies operating in contexts similar to the one which the proposal relates (actual values).

In terms of companies, however, the starting point consists of the seat-km of the proposal, according to which it is necessary to determine the physical and human resources needed to ensure the level of service offered to them accordingly.

The operating program that hence results is enhanced, that is, turned into a real profit and loss forecast, based on the actual performance of the individual company.

In a context of scarce resources, however, are important both the way in which the total resources allocated to transport will be shared among the various basins, and the way in which they are distributed between the various modes of transport within a same basin.

An equitable distribution of the financial resources, as to ensure a balanced and uniform development of transport services in the different basins, requires the Region to carry out an address policy that - while respecting the autonomy of the individual authorities in defining the technical

and managerial arrangement of the transport services - allow them to reach the identification of the interventions on the network structure of the basin and on the management structure, using a common methodology, guaranteeing, at the same time, the possibility of assessing the adequacy of the technical contents of the plans and to compare the benefits with the availability of the resources. The attention to these factors is of paramount importance when we consider that the number of individual plans, as well as the regional transportation plan, should be regarded as a set of coordinated actions aimed not only to the implementation of transport policies, but also to the creation of more general objectives of territorial management and allocation of productive resources.

On the other hand, the conceptual and operational evolution tends to favor the principle of subsidiarity, "bottom-up" processes of decision-making, and leads to ascribe central importance to the capacity of the local government to assist the determination of resource requirements for the TPL and indicate, through the development of appropriate business plans, how they may be integrated with its own resources and / or different than those provided by the Region.

Finally, in order to take part in a competition to win the exercise of a network (or network portion) in a particular area, the company must be able to verify their constraints, that are basically of two types:

- quality of service;
- budget.

The company, in fact, must be able to offer a service whose characteristics are predetermined in the exercise program placed to tender, in terms of size and articulation of the network and intensity of the service on the same network.

It's clear that the operations of the service from the company will determine the costs associated with the use of resources both direct, such as the activity of movement, and indirect, in coordination and management.

This necessarily implies that the company, in order to win the call for tender for of the network, should be able to operate on the basis of efficiency levels that secure the financial stability, taking of course into account the contribution that the Region or the City is willing to pay in order to provide the service to the community.

Starting from the decision-making process described above about the regulator and the regulated, and from the system of constraints that each person involved in their decisions must meet, as part of the studies brought a few years ago it was developed a model of enhancement of the operating program whose use enables to define the technical features of the local public transport issued for tender and the economic ones, for the purpose of fixing the price (for the regulator) and the cost (for

the regulated) of the service. It is therefore a decision support system, useful at a political, strategic and operational level.

M.O.V.E., that the name of the model, is divided into two separate modules, which, however, have the opportunity to interact, upon request, in any of the stages of information processing that they are intended to treat: the module of the *levels of efficiency and economy standard*, and the module of the *actual levels of efficiency and economy*.

Both are designed to manage an own database: the first containing "standard" information about the various items of cost management for transport services from external companies (e.g.: manufacturers of buses, magazines, etc.) and then used to define technical-economic performances as much "sterile" as possible, i.e. not influenced by disturb factors (e.g.: traffic congestion, the relative weight of non-characteristic management costs, etc.); the second contains "real" information, that is actually viewed on a number of companies, regarding the same items of cost management, used to calibrate the target levels of performance with the real possibilities of the operating companies.

The output of the model is primarily an income statement, which expresses the target cost for the management services (line, network) issued for tender, and can provide a yardstick on the demand side, when companies submit their offers, in the form of so many similarly reclassified income statements.

The model is therefore able to optimize the decision-making process both for the regulatory body in setting the level of contribution that it is prepared to grant to the company operator, and for the regulated, since individual companies may verify their position, both with respect to levels of "ideal" performance, in reference to companies similar for characteristics or morphological environment in which they offer their service.

The model is also able to provide a balance sheet, with which we can examine the financial structure of each company in order to highlight useful information for the establishment of target levels of financial stability, in terms of solvency and business ability to provide the necessary financial resources (equity + other capital) to sustain the management objectives.

In practice, the comparison between costs and revenues resulting from the application of the model makes possible to infer the resource requirements in terms of contributions, which in turn will be compared with the resources initially made available.

If there is compatibility between these two values, the exercise program so designed will issued for tender; if not, the transport policies will be revised, and accordingly the draft program, or, even if more unlikely, but in any case not impossible, to adjust the available resources according to the needs of the program.

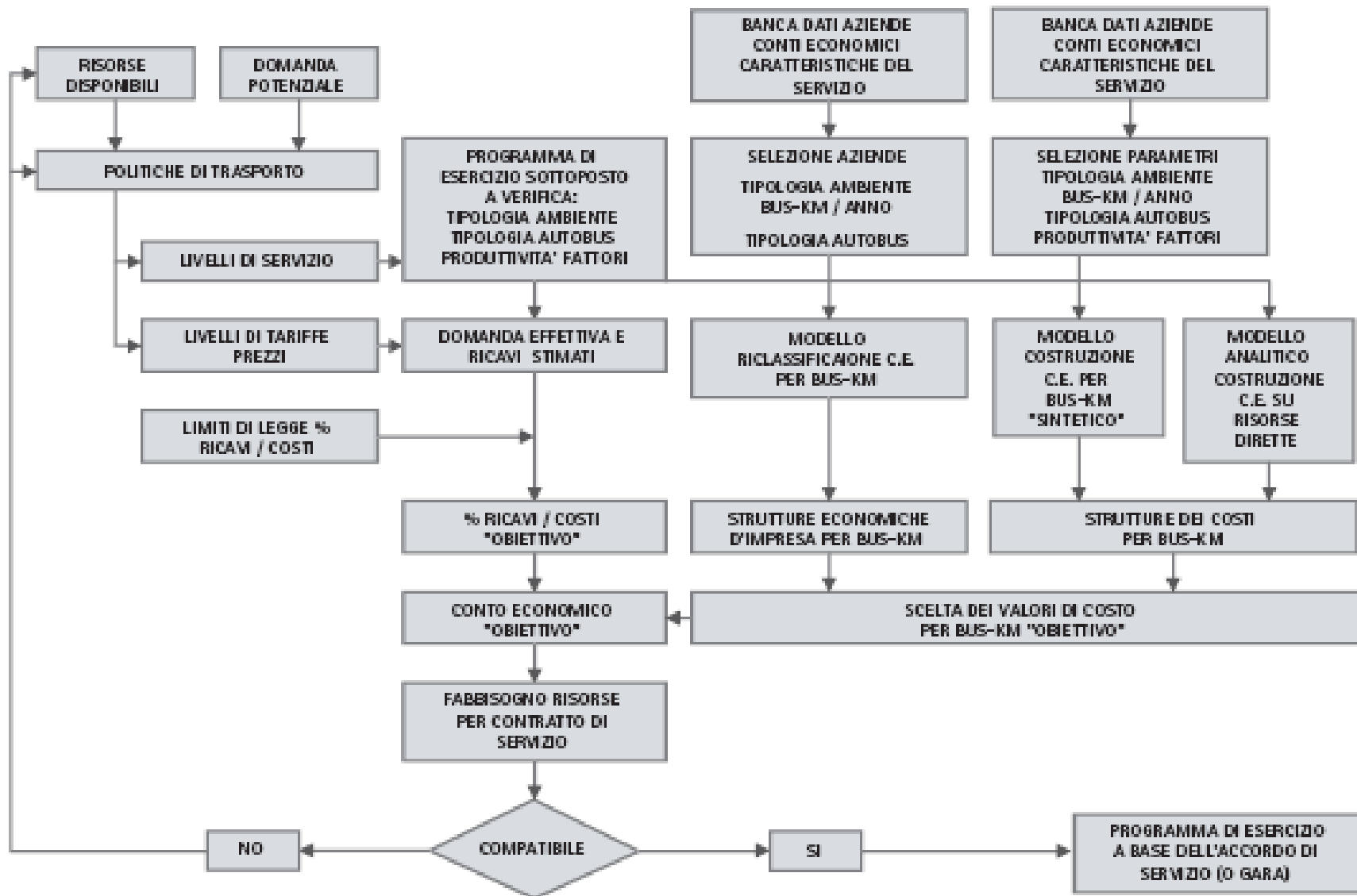
At this level, a comparison is performed between the Institution which sets the service and the companies, which submit their conditions of participation, that is an operating program on the network or a series of lines consistent with the operating program required. These conditions are the result of the exploitation of mobility programs, carried out by companies, with the help of three models: the Model of direct physical resource needs and the Model of indirect physical resources, whose input consists of the current values, this time referred specifically to the companies involved, of efficiency and effectiveness. Finally the Model of the income statement for the year, which can translate into costs, revenues and contributions what was designed.

The model can produce, finally, a series of indices, obtained by comparing accounts and technical data (distance, no. Vehicles, no. Employees, Km of the network, etc.), whose purpose is to indicate effectiveness, efficiency and business costs.

In the model, information circulates in patterns needed to enhance the operating program, according to two fundamental principles:

- one descending, from Region to companies, through a Transport Authority and / or the local delegated authorities (provinces, municipalities) (layout Picture 1);
- one ascending, from the corporate structure to the Authority for Transport and / or local authorities (layout Picture 2).

Picture 1. Layout for evaluation and decision to award the service



Picture 2. Layout for the decisions of the companies

