

*MULTIMODALITY AND INTERMODALITY IN BORDEAUX
SUSTAINABLE ORIENTATIONS AND TECHNOLOGICAL CHOICES*

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Summary: In a political context favourable to public transport and urban planning proactive, development of the transport lanes is central. The multimodal and intermodal are implemented and are based here around the tram network.

Keywords: multimodality, intermodality, networks, participation, sustainable city

**Multimodality and intermodality in Bordeaux
Sustainable orientations and technological choices**

The sustainable development in the urban environment is the object of many projects (Chart, Agenda 21). This article recounts the evolution of urban transports which leads to new political orientations and more sustainable behaviours: "The reflection upon the sustainable development was included from the very beginning in the

framework of the planet's ecologic regulations ("think globally") and has afterwards tried to "territorialize" the action principles that it defined ("act globally")" (Torrès, 2005). Environmental problems can come from the malfunctioning of the urban space "too often built and constantly reconverted according to patterns for whose implementation the local societies do not have the possibilities" (Courret, Oualet, Tamru, 2005). However, "Will cities' policies be modified by the sustainable development i.e. that of a thinking trend breaking with the productivity and technique thinking?" (Loget, 2005). One of the elements of the answer is that modifying the citizens' habits involves political risks which should be considered on short, middle and long term.

In a political context favourable to public transport and urban planning proactive, development of an own public transport network is essential. Reaching a sustainable and of proximity city while the cities and their suburbs are "at the same time more spread and more compact, more integrating and more discriminated" (Ascher, 1995: 24) is the challenge for Bordeaux. Since the arrival of Alain Juppé at the City Hall in 1995, the city of Bordeaux is constantly changing. The urban project, whose central element is the tram from a perspective of transport rationalization, aims at compensating for the car pollution by decreasing the traffic. The reflection carried out since 1995 upon the transports and ways of travelling in Bordeaux and its suburbs caused starting with 1996 the design of the directing plan for building the community urban transports.

This reflection concluded upon the necessity to get equipped with an own public transport. Among the hypothesis was kept that of the tram associated to a reorganization of the bus network, in a logic of network and multimodality.

These choices take into account the studies carried out upon the transportation at spatial level according to the distribution of the types of transportation for the inhabitants. For instance, a previous study has allowed showing the transportation in Bordeaux, divided into 60 areas of analysis for the study (Muller, 1993). The criteria used for the inquiry on the daily mobility and the structure of the city are connected to the socio-demographic database such as the characteristics of the population (socio- professional categories, motorization rate, household size...) and allow designing a cartography of the population's transportation. The crossed sorting and the segmentation do not allow obtaining satisfactory result unlike the factorial analysis and the classification (Muller, 1995: 59). This kind of inquiry identifies the means of transportation more or less used, according to the itinerary, to the number of travels and to the average time of the travels. We have to keep in mind that certain areas, according to the national average, are the object of travelling by foot at 30% (Muller, 1993: 19) which questions the accessibility. The flow towards the city centre is measured according to two indicators which allow measuring the exchanges suburbs- hyper centre: the degree of attraction and the degree of autonomy. Whereas motorization, or even multi motorization are constantly increasing, its corollary, the daily mobility, is equally speeded, generating negative effects such as pollution, traffic congestion, increased transportation time, the causes of the lack of safety, or even lack of civic spirit.

A terminological parenthesis clarifies two close notions, often mixed up, but which are actually different: the multimodality and the intermodality. These notions cover the political orientations and their establishment. In fact, the orientation law for sustainable building and development of the territory considers multimodal plans for public transport services where different chains of transport can be used in the same time.

On the one hand, the multimodality characterizes the presence of different means of transportation which allow connecting one point to another, one place to another. These means of transportation are parallel and are differently used for covering the same itinerary. However, they can be associated. A previous choice is therefore necessary among the means of transportation. For instance, we can use the highway or the railway for connecting two cities. The multimodality is a large notion used for people transportation as well as for merchandise transportation. Faced with the interest in ecology and sustainable orientations of the transport policies, this notion migrates towards that of co- modality whose aim is to reduce the environmental impact of transports.

Several conceptions of the multimodality can be underlined: "*for the client of public transportation, the possibility to use freely the set of means of transportation at his disposal over a given region, - for the organizing authorities, the use of tools allowing them best piloting their policy in terms of transport, -for the operators, a greater cooperation and synergy between them so as they offer either a real alternative, or a complementary offer to the individual vehicle*" (Pinson, 1999). At the core of the multimodality, the electronic or plastic tickets are the unifier element of the system. We deal with a global approach where the price setting, the information, the fidelity, as well as the range of elements which contribute to the varied offer of transport at the disposal of the user-client:

« In the field of persons' transportation, the multimodality allows establishing simultaneously different transport channels. In this way, in the interurban transports we deal with multimodality to consider in parallel car transportation, the railway network and the air system. It is in this way that the orientation law for building and sustainable development of the territory considers multimodal plans for services of persons' public transportation" (Wikipédia).

On the other hand, the intermodality is the combination of a range of means of transportation (bus, tram, and car) within the same travel. This term is used particularly for persons' transportation. People use several transports to

reach a point within the same travel. It is the principle of the complementary means of transportation: *“The intermodality is a concept which allows using several means of transportation within the same travel. This definition can be applied to people’s transportation as well as freight transportation where we find the notion of intermodal transport. We use the term multimodality for planning several travels or different transport channels; each of them uses a means or combination of different means”* (Wikipédia).

As for the networks, in theory they mesh the territory. They are defined as a range of crossed lines and points, forming knots. More the meshes are tight more the territory is precisely served. Two notions are associated: the connexion that characterizes the offer of a road between two points; and the connectivity which offers several possibilities to the itineraries. The public spaces combines different networks, may they be infrastructural (tram) or not (walking), which contributes to turning urban territories into exchange places through which “the production of a city and its functioning are in accordance with the networks(...) that allow it” (Offner, Pumain, 1996 : 73).

Applied to the city of Bordeaux, the purpose is to enhance the radial mesh by means of transversal in order to improve the offer of public transportation limiting at the same time the impact of the car in the suburbs and the lack of spatial balance between the centre, the right bank and the left board due to a radio concentric development (Bernard, 1997 : 17). In this perspective, the choice of the tram offers an answer for the centre and its close suburbs and ensures the prolonging of the suburbs spaces appropriate for the car. The parks are the illustration of the transition between these means of transportation.

THE TRAM : FROM MULTIMODALITY TO INTERMODALITY

The city of Bordeaux has about 500 kilometres of public roads which constitutes a “network of public roads superior of almost 30% to the average of the French cities in terms of linear space by inhabitant” (Delaloy, 1990 : 11). This trait motivates even more the purposes of accessibility to the centre become a complex urban space more and more difficult to define. Similar to all the suburbs confronted to the choice of a public transport that has a reserved space, the choice between the tram and the subway was mentioned. During the mandate of Jacques Chaban-Delmas, the subway was the preferred choice for a long time and the old tram network was closed, because it was judged obsolete face to the democratization of the car. Apart from the technical constraints inherent to a city build on marshes, it is a question of transport philosophy that determined the eventual choice of the tram during the mandate of Alain Juppé. We deal with emphasizing an urban travel policy reducing the use of cars in the city.

Dimensioning the urban public roads in relation to the traffic during the rush hours comes to sterilize the public roads spaces the rest of the day in detriment of the pedestrians. Or they are at present at the core of the reflections, especially round the reserved spaces. Unlike the subway and its galleries network, the tram circulates at the surface. There is one tool left for the complete rebuilding of the space. The works carried out in Bordeaux these latest years do not concern only the “tube” constituted by the tram rails. In fact, a global reflection of rebuilding the public spaces and of travel organization takes into account as well the following issues:

- Modification of the traffic plan in the city so as to protect the hyper-centre;
- Restructuring the bus network giving priority to the profit of the tram stations;
- Control of access to the hyper-centre allowing access to the rails exclusively to residents;
- Getting the boulevards beltway safe;
- Get the belt two ways;
- Rebuilding the rails and the places used by the tram from façade to façade;
- Rebuilding the platforms of Bordeaux into promenade platforms.

This reflection goes through taking into account the set of means of transportation and their inter connexions. The intermodality which was insufficient up to that moment for reasons of lack of harmonization of the price setting and of bad structuring of transports appears nowadays as one of the answers to the evolution of the classical pattern centre/suburbs which is now obsolete. In the field of transport, the increased mobility, the saturation of the major road and the environmental degradation determine, among other institutional reasons, the establishment of modal chains for effective transportation: “on the radial major roads, the public transports offer sometimes a reliable alternative to the car, especially if they have a reserved space (tram), but not on the transversal connections, whose development would though allow a mesh of transport networks more competitive and in accordance to the reality of urban transportation” (Boutmy, 2003: 3). The purpose is to compensate for the lacks of balance between the private and public transportation and the central and periphery spaces. The increase in the number of exchange poles has the advantage of creating certain complementarities between networks whose reorganization has to answer to the urban organizational orientations.

The tram constitutes the central piece of the public transportation network in the cities and their suburbs. Conceived as a global system of transportation, it includes three elements:

- Tram
- Bus
- Park-and-ride

This network is deployed with different means of transportation around an offer of different transports benefiting from a unique system of tickets. The same ticket is used for the access to the tram and to the bus and it allows leaving one's car in a park-and-ride. Associated to other means of transportation (private or public), the combination of the tram and the bus enables transport towards the city and its suburbs in the best conditions in terms of travel, prices and comfort. Besides, the price integration allows since 2004 using the same ticket in the bus of the interurban network or in the regional trains. This constitutes a large network for the users in Gironde and Aquitaine.

The Tram is more competitive within the radial networks when the intermodality is competitive, offers the possibility to choose one's means of transportation but also to combine several means with simplicity and comfort. With the Tram everyone discovers the advantages of associating several means of transportation or to choose the most appropriate to one's needs during a certain itinerary. In order to facilitate this structure of the means of transportation, several complementarities are established:

- Complementarity Tram /bus

The exchange poles will be platform to platform between urban tram and bus. The bus network will be reshaped so as to complete the tram lines.

- Complementarity Tram/train

Five stations are in direct connection with the train network.

- Complementarity Tram/interurban buses

Efficient correspondence between interurban cars and Tram: Road station at St Jean, Road station Quinconces, Road station Buttinière.

- Complementarity Tram/bicycles

All the park-and-ride will be equipped with parks for two wheels vehicles which will be under surveillance and will have anti theft materials. Besides, it will be possible to take one's bicycle on the tram at the time of normal traffic conditions.

- Complementarity Tram/car

Park-and-ride under surveillance will be set in the suburbs for parking. They will be located immediately close to the tram rails. Their principle is free parking if ticket is shown. Therefore, the user who came into town by car and looked for a long time for a parking place, often paid and who, when returning, found his vehicle scratched will today be able to leave his car in a park-and-ride, under surveillance and for free. He will have direct access to the city without facing traffic jams and will be sure to find his car in the same condition when returning.

- Complementarity Tram/ piétons

The main walking areas for access to the stations will guarantee a better accessibility, including for persons with reduced mobility.

This transports offer has four main aims:

- A political aim which introduces the project of sustainable and intermodal territory;
- An economical aim: enabling access to the centre means enabling access to trade and other social and cultural activities;
- A financial aim: generalize the unique ticket to several networks;
- An environmental aim: reduce the harmful effects of traffic.

Apart from this engine means of transportation, the soft means have been privileged for instance within the framework of complementary development between bicycles and public transportation (Jacob, 2000: 81):

- The network of bicycle tracks has been extended and secured;
- Bicycles are lent for free to people living in Bordeaux;
- The pavements are enlarged and reserved to pedestrians through an urban piece of furniture protection to compensate for the use of the public space.

Completed with highways and a policy of sustainable transportation, this plan is thought with the bicycle and access control. Therefore, the territorial conception of such a project is wider than the simple technical choice. It takes into account the whole range of means of transportation in the city, the price setting, the problem of parking places and accessibility to the centre. This strategy of the urban transportation plan is based on the consideration of the malfunctions concerning the objectives of the law about the air. There are several objectives:

- Growing the attractiveness of the public transportation by acquiring safety, flexibility, accessibility especially for the persons with reduced mobility, quality and service amplitude, frequency, price setting;
- Improving quality of transportation in terms of time and itinerary optimization;
- Going towards an urbanity which privileges sharing the public space for the benefit of the soft means of transportation (bicycles, walking) so as to improve the local life;
- Organizing hierarchic and complementary networks within the plan of urban development;
- Rebuilding the administration of the urban logistics within the framework of regulations, cooperation...

LOOKING FOR THE SUSTAINABLE CITIZEN

The new image of living in the city is the object of cooperation among residents. The information determines the citizen to use softer means than the car. In this way, the project consists in:

- Constraining the car so as to diminish the nuisances and the accidents;
- Render the means safer, more attractive and more pleasant.

The city of Bordeaux pays a lot of importance to the democratic dimension of its urban projects. The tram project had as consequence the balance between the share of the road between the cars, the bicycles and walkers. The residents were strongly associated to different steps, from the conception to the realization. Apart from the inquiry of compulsory public utility, cooperation meetings allowed associating the residents to leading the change.

Cooperation meetings were organized and their outlines were established previously. The presented objective was not to exchange upon the opportunity to modify the means of transportation in Bordeaux, but to share experiences around the theme of constraints specific to the neighbourhood so as to determine the evolution of the project according to the commentaries of the main people involved. Therefore, the cooperation has become a participative debate during which the residents proposed improvement projects (Gardère, 2008). This has allowed specifying elements of the file.

The theme of this transportation policy was the sustainable development. However, the resident sometimes found himself confronted to his own contradictions in this field. In fact, the behaviour of the latter determines, sometimes without even being aware of it, actions against the sustainable development. Simply the fact of complaining when the leaves fall on the road or of refusing permeable land settlements for the reason that this disturbs the walk generates a technical process from the part of the municipality that will consume a great deal of energy and determine the establishment of a process going against the sustainable development. That is why "The reflection upon the sustainable development was included from the very beginning in the framework of the planetary ecological regulations (think globally) and has afterwards sought to "territorialize" the action principles it defined (act globally)" (Torrès, 2005).

The law about the air and the rational use of energy is significant for the policies of improvement of life environment and concerns especially the transportation policies by obliging the French cities and their suburbs to

purchase a plan of urban transportation which follows the law of orientation of interior transports from 1982. It is about guaranteeing “a sustainable balance between the needs of enabling the access on the one hand and the protection of the environment and health on the other hand” (CUB, 2005: 3). The Law of orientation for the land settlement and the sustainable development of the territory follows since 1999 and revises the previous law by completing the notion of sustainability, more commonly called sustainable city by the local community.

Such an action cannot simply satisfy the urban with the risk that many land settlements go against the action itself. Many environmental problems can come out of malfunctions of the urban spaces “too often built and constantly reconverted according to patterns for whose implementation the local societies do not have the possibilities” (Courret, Oualet, Tamru, 2005). Let us take the example of the bus. If the citizen is aware of its utility and wants a dense and meshed network, his certitudes will disappear if the station is set in front of his house. This example shows that the urban ecology does not have to deal only with technical adaptations. However, “will the cities’ policies be modified by the sustainable development i.e. that of a thinking trend breaking with the productive and technical trend?” (Loget, 2005). It is in fact a strong political risk since modifying citizens’ habits is not lacked of importance.

CONCLUSION

Information, consulting, cooperation, participation are levels of proximity communication and they connect politics to the citizen: “An instructed people, that debates and discusses; a people enlightened by the specialists, by its representatives, but not governed by them; not self-governed: this is the ideal” (Alain, 1906: 47). In spite of the laws and rules by right which guarantee the existence of cooperation, there are certain limits that get out of the political and administrative framework. We have to look into the administrated side. “The citizen says he is interested in participating at the local business; or he little participates” (Raséra, 2002: 138). The real aim is therefore to communicate to the citizen a relevant amount of information, so that he can get actively involved in a global reflection upon the City. Does such a project go through the training in urban settlement or the definition of representation in the neighbourhood as a whole?

The application of the new legislation for Bordeaux leads to a logic planned according to a pattern created for the respect of a community policy. The plan of local urbanism is therefore elaborated at the community scale and the tram is its illustration. The elected people, engineers, architects and town planner contribute to a city with sustainable transportation. Reorganized in favour of the expectations gathered by inquiries and emergent uses, this city supported with tools and means is administrated on middle and long term with the ambition of a citizen project for the adaptation to the reality of transportation in the city and its suburbs.

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