Long-time and decision-making process in transport planning

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INTRODUCTION

With the recent economic crisis, the French government announced the reflation program start, reviving a Keynesian Policy based on massive public investments in large infrastructure projects (CIACT, 2009). This kind of program is the occasion to put some old projects back on the agenda, especially for projects waiting for twenty or thirty years funds to start the construction process or finish it. In this way, the reflation program released 870 Million euros for road, railway, river and port infrastructures, concerning 149 identified operations such as high-speed lines construction or road works. Among these 870 Million, 10 Million were allocated for the Region Provence-Alpes-Côte-d'Azur to "accelerate the works execution on the L2 by-pass project in Marseille". This decision seems very common, however those who know the local context are completely aware that the Marseillais are waiting this L2 by-pass for more than sixty years, since its first appearance in town planning schemes in 1933. A first section was built in the 1970's, a second one in the 1990's, and now construction works continue according to the funds released.

This kind of endless projects, which needs several tens of years to be completed, step-by-step and piece-by-piece, or which is never achieved sometimes, is quite common in transport planning. Transport projects are also characterized by the long time between the first studies in its early stages and the first works, even more if we consider the time-to-delivery.

Paradoxically, these projects reflect two contradictory logics: on the one hand they do not succeed in really leaving the shelves to be quickly completed and achieved; on the other hand, they persist and continue to present for instance in urban schemes. This double logic raises the question of weight of time in transportation planning: How does time interfere in transport projects? Which are the factors/actors of stability/instability in the decision making-process?

One way to answer is to analyze precisely one transport project on the long time, by focusing on the decision-making process, in order to highlight the way in which the project evolves as regards to urban, political, economic, social, or institutional,…, changes. We believe that a long-term analysis is necessary to reveal and understand the double logic working in decision-making process: a logic of adaptation and flexibility which makes evolve the project, and a logic of irreversibilisation or path dependency which creates some invariants and leads to a contradiction between the project components. Our analysis tends to show that we can go beyond the simple comprehension of blockings or progress in time-life project by a succession of conflicts or consensus between the stakeholders. By introducing an

interpretation based on several temporalities, reversible and irreversible logics appear in the decision-making process.
This research is extracted from a PhD research, based on one case study, the L2 by-pass in Marseille, produced within the framework of an international comparison on mega urban transport projects sponsored by the Volvo Foundation. We used three main materials: a study of all the documents related to this by-pass project; documentation on national and local policies relative to transport planning and on economic, political, geographic and socio-demographic context between 1930 and today; and interviews with stakeholders involved in the project. We have also reconstitute the decision-making process, and the context in which the project took place.
Our argumentation is articulated in three times: an analysis on time in transport project and a definition of characteristics of decision-making process; a review of literature on decision-making process; and an examination of the L2 project in Marseille.

TIME IN TRANSPORTATION PLANNING

When we work on transportation planning, we have to reminder that we work on an object characterized by a long time-life. The historians (Lepetit, 1993) showed the perenniality or durability of networks, in particular road network, which testifies, like the cadastral map, a great stability in the urban history contrary to the buildings. The infrastructure as an architectural object has a long time life, most of the time more than a hundred years. And even some of these infrastructures can be destroyed within the perpetual process of construction/deconstruction/reconstruction that characterized the cities (Hommels, 2005), their effects are still perceptible. In a way, by the power of the infrastructure to structure the territory and to organize our mobility, the time-life of the infrastructure exceeds the time-life of the architectural object. The new geography of our space-time produced by the high-speed trains is an illustration of that (Ollivro, 2000).

A long-time process

Quite paradoxically, even if the time-travel is reducing thanks to a speed increase, the time-to-delivery and even more the decision-making process seems to be more and more longer (Merlin, 1991). If we compare the time-line of the 6 completed high-speed lines in France, between the first studies, the declaration of public utility (which confirms the project) and the opening date, we confirm this assumption (Table1). In the last audit mission on great transport infrastructures in France, the CGPC/IGF obtained the same findings. The time extension of studies, procedure and consultation, preconditions to the starting of works, leads them to evaluate the decision-making process from 10 to 12 years (the average time between the first prior studies and the effective starting of works (CGPC/IGF, 2003). Flyvbjerg's research on megaprojects characterized by a standard deviation in costs, benefits and also in time, complete this diagnostic (Flyvbjerg et al., 2003).
The literature on transformation of public policies (Muller, 2005) and more specifically on urban and transport policy (Hall, 2009; Banister, 2005) give some indications to understand

changes in decision-making process. The time extension of the decision-making process can be explained by a complexification applied on two levels:

1. A multiplication of the stakeholders involved in the decision-making process, with an opening of the decisional circle to local authorities (defined by a territorialization of public policy: for example in France with the transfer of responsibilities from the national to the local or regional level); to European authorities (who finance large infrastructure projects); to private partners (related to the withdrawal of the State); and to users and inhabitants (by the procedure of dialogue). The challenge is also to involve all these partners in the decision-making process, in good governance.

2. A multiplication of issues, carried by the discourse on sustainable development, which supposes a better articulation between environmental, economic and social stakes.

The literature on megaprojects (Althusser & Luberoff, 2003; Flyvbjerg et al., 2003; Miller & Lessard, 2000) adds a third argument to the complexity, with high level of risks and uncertainties. All these elements can be considered as speed reducer in the decision-making process, by a simple cumulative effect: we add a specific time for consultation, or we extend the study phase to improve the control on the environmental impacts. But in the same way that technical innovations can accelerate the construction phase of a project, organizational innovations can also accelerate the decision-making process. On this point, consultation procedure can be seen as an organizational innovation aimed at avoiding conflicts and making the process secure.

That's why all these elements dealing with complexity can explain the time extension, but only partly.

A specificity of transport planning?

One of the first questions arised when we consider the weight of time in transportation planning is probably: why is it so long? We can also try to list the characteristics of the decision-making process in transportation planning.

1. A conflicting process: by definition a transport project opposes two logics, a logic of sector (the infrastructure is a part of a transport network, and offers an access to this networks for users) and a territorial logic (the infrastructure is an object in an inhabited territory). This double logic means that the infrastructure opposed two kinds of people: users and inhabitants, who have not the same interests. This characteristic is not specific to the transport projects, but concerns all kinds of infrastructures (from the airport to the nuclear station.

2. A huge number of actors: a linear infrastructure like a highway or a railway crosses several institutional and territorial frontiers and involves by this way a huge number of actors in the decision-making process. Even in the strict limit of the urban area, the superposition of institutional authorities leads to the same effect. Again this is not specific to a transport project, but this multiplication of stakeholders involved can be a part of the explanation.

3. An important cost: infrastructure projects are characterized by the huge investment and with a specific time-line, so they require a particular structure of financing. Most of the time these projects are not very profitable and require a very long time to get a return on investment. This essential characteristic appears when we compare the timeline profile of expenditures and incomes flows for an infrastructure project with the same profile for an

ordinary industrial investment (Gramlich, 1994). An industrial operation implies initially an expenditure, but very quickly as soon as the investment is finished, it yields a revenue. In the case of a transport infrastructure, the initial expenditure is heavier and longer, and then the receipts are long in becoming positive. Because of this specific time-line, we understand that the time-management in the process and the respect of time-to-delivery are crucial. Again this timeline profile specific to infrastructure projects can explain the difficulties to find a structure of funding and to launch the project.

4. The network: a transport infrastructure belongs to a network and its profitability is linked to this network. That's why a project can be postponed if it's not a major piece of the network can be postponed. This argument explained for instance the structure of the high-speed network in France: the most profitable lines were built in first place in a logic of national network (centred on Paris), and now in a logic of European network (with the TGV East). These lines were also the most important for the network structure. In a way, the position of the infrastructure in the network organization prioritizes the projects and accelerates or delays their concretization.

Again all these arguments are not specific to transport projects but concerned different kinds of infrastructure projects. So the specificity of this long time-line is more related to the infrastructures characteristics' than to the transport ones.

Consequences on the decision-making process

If this slowness is not specific to transport projects, on the other hand it has several consequences.

The long time between the beginning of the project and its end increases the risk of gap between the project as it was studied and thought and the project as it will be realized. The time acts on all the elements composing the project and also on the territory in which the project will be connected. The more the process is long, the more we have the risk of a conjonctural (cyclical) or structural changes: for example with the evolution of the actors configuration after an election, or the withdrawal of a leader in the team responsible of the project management, etc. Some events can conduct to a modification of legislation. That's what happened after the Montblanc accident in France in 1999, which led to a new circular concerning the security in road tunnels. All the tunnel projects in progress had to integrate these evolutions in the first conception steps on the process. In the same way, the project has to deal with the city evolutions: urban sprawl, travel demand increase, etc. So time acts on each part of the context and forces the project to evolve and to adapt itself. The concept of obsolescence of infrastructure is also used to define the disconnection between the infrastructure and its context, which explain partly the "crisis" of urban infrastructure (Graham et al., 2001). Some authors like Hommels (Hommels, 2005), giving examples of infrastructures dismantling or transformation shown that the key problem is the shift between the speed of urban transformation and the speed of the infrastructure evolution.

Finally, the long-time process calls into question our tools and methods for planning, based on a traditional ideal of "predict and provide". Many authors shown the limits of our methods, in a context of risks and uncertainties (?), and the more the process is long the more we increase risks and uncertainties. Many authors have tried to propose a solution to adapt our methods: by developing better tools and improving the cost-benefit analysis or the

multicriterion analysis to approach the complexity of the real and to consider all the possible evolutions (Meyer & Miller, 2001); by defining a strategic planning, focused on the objective of an ideal reality where we try to go, and the construction of consensus to define this objective (Haley, 2006); or more recently by giving the framework to define a flexible or evolutionary (Bertolini, 2007) planning, introducing more flexibility in the decision-making process and focused more on the process and our capacity of adaptation than on the objectives. We don't try to explain in this paper how to deal with a moving context in planning, or more specifically in transport planning. Our aim is to propose a grid of analysis to understand how time affects the decision-making process, because as we have seen in these preliminary remarks, taking account of a transport infrastructures characteristics', we can't argue precisely why the decision-making is so long and why we have so many projects, such as the L2 by-pass, characterized by a chaotic time-line, never completed and never stopped.

FLEXIBILITY AND IRREVERSIBILITY IN THE DECISION-MAKING PROCESS

Time and decision

The literature on decision ignored for a long time the question of interaction between time and decision, by considering the decision as a single moment in a specific context entirely known by the decision-maker. In this conception, the time variable doesn't intervene. The classical economists to describe the behaviour of a rational actor in the market used this conception. H. Simon, in his theory on the limits of rationality, introduced for the first time the time variable in the decision theory. He explained that the rational classical approach was based on three main hypotheses: the decision-maker knows the problem; the problem can be identified; informations and ressources are available. In reality, these hypotheses were false: the solution is always subdued to temporal constrains and depending on the resources really available. Simon changed the angle of reflection in decision theory: from a single moment to a process. In *Administrative Behavior* (Simon, 1947), he explained that individuals don't try to test all the possible solutions but limits their choice to the first option they consider as good and fair. So the rationality consists to not waste time to do the right choice. The time variable plays an important part in the process by introducing a hierarchy between the objectives set by an actor or an organization before the decision. The study of collective and public decision, and the fact the decision theory interested sociologists and political scientists (and not only mathematicians and economists) confirmed this evolution of perspective by analyzing the decision as a process (Simon, 1978). Cohen, March and Olsen (Cohen et al., 1972), famous for their "garbage can model", examined in more details the impact of this time variable. In their model, problems, solutions and decisions are connected because of their simultaneity, more than because of their causality. In organizations, defined as organized anarchies, the time and the simultaneity are also more important than the causality link, to understand the decision-making process. The innovation introduced by this model was considerable and conducted to call into question the linearity of the decision-making process: a solution can precede a problem; the implementation of one solution can create

new problems; etc. As Sfez (Sfez, 1978) suggested in his article on the RER decision (concerning the construction of the first rapid regional train in Paris), the decision-making process can be dismantled allowing to reveal a dancing process going back and forth, with no specific moment of decision. Based on these researches, the public policy analysis showed the dynamics operating in the decision-making process. Some authors tried to define the different sequences in the decision-making process. Most of the time we retain five main steps (Jones, 1970): identification of a problem; formulation of a policy; choice; implementation; and evaluation. A recent EU project on urban transportation planning, based on a survey of 60 European cities, the decision-making process is identified in an "ideal" way as a succession of several steps (May et al., 2005): a definition of objectives and indicators; the definition of problem; a specification of possible future scenarios; the identification of possible instruments to tackle the problems; etc. This definition is quite similar with the sequential decision-making process, defined by Jones (Jones, 1970) and which is not specified to transport policy. We used this definition of a sequential decision-making process, stretching from the first studies to the evaluation, and kept in my mind that it's a dynamic and non-linear process.

We make this hypothesis of a double dynamic in the decision-making process. Base on Kingdon analysis (Kingdon, 1984), we suppose that the project is the result of a junction between several dynamics. The large literature on the agenda setting introduced a modeling conception to understand the dynamic of emergence of a problem on the agenda, which is completely similar with the project elaboration. Kingdon developed an interesting model based on a theory of multiple streams. He explained why some issues reach the agenda by the connection of three streams: problem stream, policy stream and political stream. The junction between problems, politics and policies created a window of opportunity. Contrary to the garbage can model, Kingdon insisted on the strategies of actors to produce these windows of opportunity and to make a problem emerged on the agenda. This model is particularly effective in the case of urban and transport policies, when the process has to deal with the urban evolutions. To define the decision-making process as a junction of several dynamics allows to understand the project evolution: each part of the project as each element of the decision-making process (problem, policy and politic) evolve according its own dynamic.

In the same time, economical analysis showed that in an innovative project the range of options decreased with time, due to the increasing returns generated by any investment. This theory, well-known as the path dependency theory, allow to understand the shutting process specific to any technical or innovative process. In particular in the technical network construction, the choice of one technology creates some irreversibilities and induces a specific path to the project by making any changes more expensive and almost impossible, compared to the positive feedbacks related to the first choice path. This economical conception defined the decision-making process as a progressive irreversibilization (Boyer, 1994). The concept of path dependency was also applied to the public policy elaboration, for the first time by Pierson (1994). Working on the US political institutions, Pierson showed that institutions were also concerned by these positive feedbacks and increasing returns. More recently, several authors applied this theory to the urban and transport planning. In a recent article, Pflieger (Pflieger & al., 2009) showed the correlations between past and present transport and urban planning policy in order to explain the different policies engaged in the

European cities to answer the same objective of car traffic decrease. In the same logic, Low (Low, 2009), focused on the Australian example, tried to understand our difficulty to engage a transport policy in coherence with the sustainability challenges. The concept of path dependency is effective to explain the long-term dynamics and historic patterns avoiding the determinism bias.
The combination of these two theoretical models (streaming dynamic and path dependency) is necessary to understand on one side how a project evolves but on the other side why it remains and continues even if it's disconnected with the current needs and the urban reality.

Long-term analysis

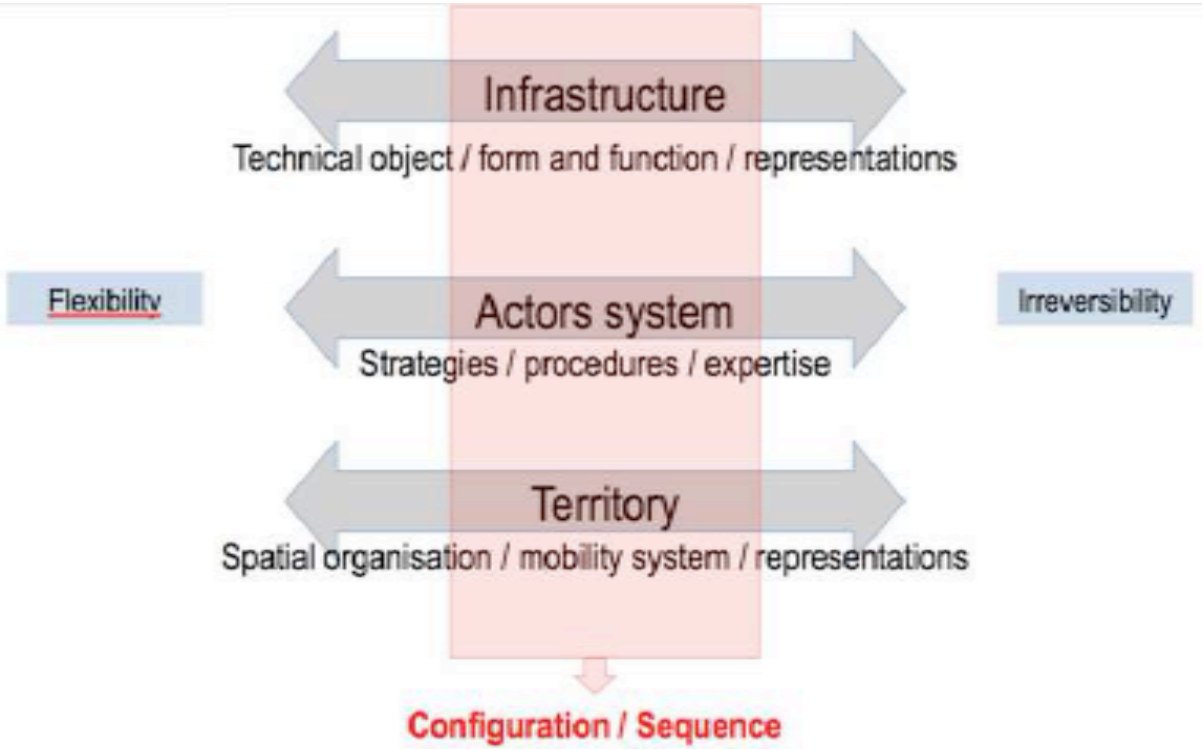
Why using a long-term analysis to understand a transport project evolution? Our first idea to study this impact of time on the decision-making process was to working on the articulation between all the stakeholders. In this conception, the time-line of the project is resulting from the kind of relationships between the stakeholders. When they build a consensus, on the project objective for example or on the layout of the infrastructure, the project goes on. At the opposite, when a conflict ruins this consensus, the project is stopped. In a way this vision lead to the theorization of what Haley call a collaborative planning (Haley, 2006). The decision-making process is also defined as a process of consensus construction. That's why the research on decision-making process in planning, and also in transport planning, is focused today on the public participation or governance. The conflicts and protests are seen as a major risk in the course of the project. Most of time this kind of explanation is right and there is a concordance between the consensus phases and the project progress.
However, in many situations this analysis doesn't succeed to explain the time-line project. Some projects can be supported by a large consensus but stay in stand-by. A lot of by-pass projects can enter in this category: all the cities want their by-pass, and yet rare are those equipped with this complete ring. Latour, working on innovation process, illustrated the death of a transport project Aramis without any protests or conflicts (Latour, 1992). At the opposite, some projects suffered from huge contestations are today great success.
The time definition proposed by the historian Braudel (Braudel, 1958) can help us to understand what's happen behind the dynamic of conflicts and consensus. Working on the history of the Mediterranean civilization, Braudel defined three kinds of temporality: short, medium and long. The short time is defined by the succession of events, the rhythm of the ordinary life. In public policy, this time corresponds to the succession of conflicts and consensus. Braudel was very careful with this time that many people considered as the entire reality. He accused traditional historians to limit their vision to this short time writing a factual history. The medium time is used by economists to reveal cyclic evolutions. Behind the standard variations of the market, they identified trends corresponding to growing or decline periods. But some continuities and regularities are hidden by this cyclical view and are revealed by a long-term analysis. The long time is the time of the structural evolution of the city. There is a short time, a medium time and a long time for each form of life (ecomonical, social, geographic, political, religious, etc.). But they are not so easily visible in every field: the long time is more visible in geography for instance. The mistake is to choose between one of these times instead of articulate them. That's why our methodology is based on reconstruction of the project story-line by using these three temporalities.

Methodological issues

We make the hypothesis that a double dynamic intervenes in the decision-making process: a dynamic of evolution and flexibility, which makes the project evolve according to the context evolution; a dynamic of path dependency reducing the project capacity of evolution. We propose to make this double dynamic appear by using:

- The short-term analysis, focused on the stakeholders' strategies, allows to understand the ordinary and factual dimension of the decision-making process.
- The medium-term analysis reveals the logics of action, the configurations in which the project is defined by a problem and a solution, and the bifurcations leading to a new project configuration.
- The long-term analysis reveals the regularities behind these sequences of action, and the elements which doesn't change despite the redefinition of the problem and its solution.

Our methodology consists also to identify sequences in the decision-making process. Each sequence is characterized by a system of actors, with their strategies, a normative framework (such as technical norms or procedures) and a cognitive framework (representations, ideas concerning for instance the relations between the city and the road network). The planning documentation such as the metropolitan strategic schemes or the successive urban plans since the 1920's gave us a right vision of the evolution of this cognitive framework. We used also all the documents related to this by-pass project produced by the local authorities and by the State. The local press analysis informed us on the context evolutions, but the confusion of economical, social, demographic, cultural, or political evolutions raised a mayor difficulty. Rather than lose our attention in all these categories, we have decided to focuse our attention on two main elements of the context: the evolution of the actors system (impact of the political terms, changes in project manager, etc.) and the city evolution (in space). The interviews realized with stakeholders involved in the project gave many elements for the short-term analysis but also led to a more detailed analysis for the recent period than the early one based only on the documentation.



STUDY CASE

Bypass, ring road, beltway… each city dreams of its boulevard, this magic ring defined by all the virtues and all the imperfections. Side virtue: it is the best means of reducing the congestion in downtown area, by shifting the transit traffic and by treating on a hierarchical basis traffic flows. Side vice: it is an urban cut, an open scar, often remains of fortifications, a last limit between the city center and the suburbs, a border and a gradient of poverty, at the same time real and symbolic limit. In France except from the well-known Parisian case, most of the main cities suffer from the incompletion of their bypasses: either they still do not have any bypass or ring road, or they have one but incomplete. So this kind of transport infrastructure seems to be a paradoxical object but at the same time extremely interesting, since between the city and its by-pass it's a love history like “I love you, me neither”. In Marseille, this need for bypass project corresponds to a recurrent speech, since the years 1930 when the first scheme of embellishment were developed, and in the years 1960-1970 when cities were literally adapted to the car, with the construction of penetrating expressways and a first bypass. Some of these projects were never completed and are abandoned; the others are still in progress. Practices have changed from now on, and the object evolved: expressways from the 1970's are replaced by a roadway system more integrated to the urban design under the concept of “urban boulevard”. Moreover for cities already equipped with a complete ring road, the stake now is rather to hide it, to cover it in particular in order to reconcile road with public space. But even if the reality of this object evolved, the speech persists on the need for infrastructure.

First ideas: a solution without problem (1930's-1950's)

The L2 By-pass project didn't really start before the 1960's with the first studies, however it appeared for the first time in 1931 in Greber's work. In 1919, in order to develop the first reflection on the control of urban expansion, the French legislation imposed an urban plan to the most important and touristic cities. Greber was architect in charge of the Marseille planning scheme. In 1931, two years before the publication of his complete project, he designed a traffic scheme approved by the local authorities. In this plan (Figure 1) he developed a first analysis on the road network structure. Focused on the metropolitan scale, the plan articulated a large network of circular boulevards, main access roads, and radial roads in a complete and connected system. The L2 by-pass didn't exist under this name but was defined as the second ring road on the map, designed on the parkway model inspired by Greber's American experience few years latter. Like the autostrade (highway ancestor) linked Marseille to Aix and Marignane, Greber imagined this ring road as a broad landscaped road. At that time the ring road crossed a rural area, outside the city-centre. The traffic scheme answered to a touristic preoccupation (because the drivers in France were still mostly the tourists) and to an urban strategy in order to build and organize the city by the road network expansion. However, the ring road remained a line on the map and never emerged as a real project. The responsibilities sharing between the city council, the departmental authorities and the State, the lack of means, and above all the traffic weakness, led the local authorities to stay at that preliminary stage. Even if Greber advocated a rapid realization of this infrastructure to avoid the congestion risk, a such risk was nonexistent for politicians and technicians. Despite a growing traffic the congestion was not identify as a public and even less a political issue, except for some architects and urban planners. However, this first traffic scheme imposed for a long time a vision of what should be the traffic organization in the metropolitan area. The road network structure with an articulation of circular boulevards, main access roads and radial roads was repeated in all the next urban schemes: the Beaudoin plan in 1941, the Meyer-Heine plan in 1949, and more recently in the first strategic scheme (SDAU) in 1969 and in the first land use scheme (POS) in 1981. The L2 by-pass was always present and the most surprising is probably the continuity of the layout. If we superpose these schemes, the different L2 lines in time make a one and only line in space. This continuity allowed to start the land reservations early, before the project starting. During the interviews, this Greber plan was constantly evoked as the project starting point and as an argument to justify the necessity of the project. These first plans coincided with the setting up of town planning procedure (Gaudin, 1985) and they inscribed for a long time a certain vision of the city structure and organization in the collective imagination.

First project: coincidence problem/solution (1960's-1970's)

The second sequence is characterized by the real beginning of the project. A first section of the by-pass project is build between 1973 and 1975. In order to answer to a rapid population growth and an urbanization expansion, the local authorities launched several great equipment projects. Gaston Defferre, mayor from 1953 until his death in 1986, developed a huge work program: housing construction, creation of a first metro-line, economic

development, etc. The construction of the Arnavon & Allende Boulevards, by the local authorities, contributed to this ambition of modernization. These two boulevards constituted the first section of the L2 by-pass, crossing the north district under construction too. The sector was defined as a specific and priority area to urbanize (ZUP procedure). Thousands of low-cost housing were created, in a large-scale conception of architecture, with towers and long linear buildings. In this context the road infrastructure is conceived no more like a parkway but like an expressway, a two-lane road crossing the building area. The hierarchical conception of the road infrastructure clearly separated this expressway from the local traffic and contributed to isolated the different districts by block. The project answered to a main objective of protection of the city centre, in a context of road traffic increase and car use explosion. The project birth can be explained by this contextual evolution creating a real demand in terms of traffic, but also by the constitution of technical expertise around the road engineers. This period is also characterized by the affirmation of a technical expertise based on the traffic modeling and the definition of technical norms. The first technical guide for expressway (ICTAVRU) conception was edited by the ministry in 1968. The project benefited at the same time form the dynamic involved by the great national programs of equipment and modernization. In particular, the highway network gained by this policy and entered in Marseille to connect the city with the national network. The car transformed the city and as in the Buchanan report (1963), by-pass projects were proposed to reorganize the traffic and avoid the transit traffic from the city centre. All these elements contributed to trigger the project but at the same time to make it evolve. The traffic improvement objective was completed with an objective of speed, so the parkway model was rapidly abandoned for an expressway model based on high traffic forecasts. Nonetheless, the lack of means led the local authorities to stop the project at this first section. The economic crisis turned down the metropolitan dynamic exactly like the national dynamic.

Second project: solution adaptation (1980's-1990's)

After a quite long period of standby (almost 10 years), the project reappeared in the middle of the 1980's, not supported any more by the local authorities but under the State responsibility. In 1979, the project management was transferred for the city to the State. At that time, the local authorities were financially unable to complete the by-pass and the construction of the north and east highways arriving in the city centre (by the State) gave them the opportunity to transfer the by-pass project to the State. By connecting the north and east highways, the L2 by-pass became an interesting project for the State. This transfer of responsibility led to an important change in the project morphology. The infrastructure, conceived at the beginning as a parkway, build in its first section as an expressway, became an highway. In 1986, the highway status was ratified and deeply modified the project objectives. The main objective became the highway connection. The objective of traffic diversion to protect the city centre became inoperative in a multipolar urban area. The massive transit traffic already bypassed the city with the highway network behind the hills surrounded the city, and the L2 layout was henceforth in the middle on the city. The project really restarted in 1990 by the State, thanks to a funds release in a partnership contract between the State and the Region and above all thanks to a change of team in the State decentralized services in Region. This new team took the entire responsibility of the project and decided to get the project off the ground by

launching as soon as possible the works on the 1970's project base. Obviously, the resident contestation was immediate and virulent. By this strategy, the team responsible for the project obtained a rapid declaration of public utility, in order to guarantee the project realization by the State official commitment. However the project would be deeply modify. The public dispute concerned the quality of the road urban integration. Contrary to the previous section, the L2 by-pass crossed here a residential area constituted by the increasing concentration of population around some old villages progressively integrated in the urban area. The road infrastructure was not build with the urban structure but surimposed on the existing urban infrastructure. The project appeared like an unacceptable cut. At the same time a more global reflection on the large infrastructure conception emerged, since the 1970's and based on an environmental criticism. The L2 project was also conceived as an experimental project to test several innovations and testify a new practice of large infrastructure planning. Inspired by the Spanish experience of Rondas (circular boulevard around Barcelona), the L2 team involved architects and landscape designers in order to adapt the road infrastructure to the urban context. Despite these ambitions, the highway characteristics imposed some specific and technical constraints, and finally the L2 was buried and covered on most of its route. New public spaces were created on the cover slab. The highway characteristics with a three-lane road led to another consequence: they made the previous north section rapidly inadequate and obsolete. The traffic forecasts on the eastern section concerned 100 000 car per day. The existing boulevards already almost saturated couldn't support such traffic. This inadequacy of the northern section to cope with traffic imposed to completely redesign this section and led to an important project slowdown concerning the eastern section (because the eastern section opening into service was conditional on the northern section transformation).

Third project: to deal with the solution (2000's-today)

This third project was launched in 2000 and symbolized a new conception of the road infrastructures in town. The change of team in the State decentralized services was again the trigger element. A new multidisciplinary team was composed this time not just with road engineers but also with urban planners. This professional reorganization coincided with a more deeply change in the State services. After almost twenty years of decentralization, the local authorities have developed their own technical services to deal with the transfer of responsibilities from national to local level. The State decentralized services became one actor between many others in charge of transport and urban planning. They evolved towards a consultant role. This professional reorganization also answered to a new conception of road infrastructure. The technical expertise of road engineers showed its limit creating large infrastructure disconnected with the urban context and creating more and more congestion instead of reducing it. In this context, the L2 by-pass was reconsidered taking into account two contradictory ambitions: to transform the existing boulevards in highway to cope with the traffic forecasts, and to create a modern and integrated infrastructure dealing with the urban complexity. The road project was conceived as the support of a large urban project. For the team in charge of the project, the urban renovation of the north districts was also a good opportunity to more involve the local authorities. They were rapidly aware that build such a large infrastructure in the urban area would be impossible without the local authorities

commitment. That's why the coordination between the road and urban project was seen as an opportunity to make the road project accepted and to engage the maximum of stakeholders behind this project. A competitive market was opened to design the new project of road and urban planning. With the public participation, the new infrastructure was designed as a partly covered highway, doubled on the surface by a new urban boulevard with a tramway line. The project integrated a new objective of local service in order to suppress the urban cut creating by the existing boulevards and to improve the accessibility of these poor and isolated districts. The conciliation between the highway characteristics and the local service was solved by this mixed solution of highway and urban boulevard superposition. However the project didn't succeed to get off the ground. The oppositions between the logics of actors and above all the lack of tools to conceive and finance such a complex project led to a new standby phase. Today the project is waiting for a public-private partnership contract in order to achieve the eastern section and build entirely the northern section. This is particularly interesting to compare this project with the current needs in terms of traffic. In spite of its appearance of urban boulevard connected with a large urban renovation, the infrastructure stays a three-lane highway crossing a high densely populated area. The traffic forecasts show an immediate saturation of the L2 by-pass from the opening into service. So we know that the infrastructure, despite its main objective of traffic improvement, will not answer to the congestion problem. The estimated cost to achieve the whole project should raise the question of the opportunity of the project. If we consider the objective carried by the State to connect the highways, this connection has already done by the creation of a paying tunnel connecting the eastern highway with the littoral highway, under the city centre and opened in 1993. If we consider the traffic improvement objective, as suggested previously, the traffic forecasts call into question this objective. Nonetheless the by-pass project is never call into question. The project was inscribed for the first time in the Greber plan and would never been called into question. On one hand, the project succeeded to adapt the infrastructure conception regarding to the urban evolution. The first expressway, conceived without any connection with the urban environment, is replaced by a new integrated infrastructure juggling with the different uses of the infrastructure and producing a new generation of urban highway. But on the other hand, each sequence introduced an irreversible element in the project design: the idea itself that the city needed a by-pass infrastructure (even if it answered different objectives), its route (in first in the fringe of the city but then included in the urban area because of the urbanization), and its highway characteristic (linked to the transfer of responsibility from the local authorities to the State). Despite the project evolutions, the discourse on the infrastructure necessity persists even if the conditions, which justified the first project, are not available any more.

CONCLUSION

The different sequences observed in our study case let appear a succession of configurations where actors and logics of action seem to be coordinated. Each project configuration defines a specific problem with the objectives to which the infrastructure should answer. The context evolutions, the city transformations as the modification in the system of actors, induced a reconfiguration of the project. But if the project is reformulated it's always within the limits of its original framework. This study case raises the question of the project

success or failure. We assimilate more and more the project success to its capability to deal with a risky and uncertain context and to include more flexibility in the decision-making process. In a sense we could say that this project, even if it's not achieved yet, is a success because the 1960's highway is transformed in a 2000's urban boulevard. This success criterion would be enough if the main objective was to complete the project and finally build the infrastructure. But that's the point: the decision-making process led to an irreversibilisation of the project and to a limitation of the choice in order to respond to the congestion problem. Finally the long-term analysis showed that even if effectively the flexibility worked on the project objectives (more and more complex, including multilevel objectives) or the infrastructure form (more and more integrated), the flexibility didn't come back up to the choice of a type of infrastructure and to the project in itself. It seems that the problem concerns finally our conception of what is a good project. If we consider the project and the decision-making project as a process where we should go until the end, despite the various obstacles and difficulties, we take the risk to persist in a project condemned of being obsolete. Our study case showed that the project is never achieved but in a permanent evolution on one side, and subject of a path dependency logic on the other hand. The only way to go beyond this contradiction seems to accept that the aim is not necessary to achieve the project and to finally build this missing link.

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