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Building-up urban scenarios: assessing institutional feasibility and political viability of strategic trajectories[1].

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Summary

The paper discusses a simple methodological tool for supporting the participatory elaboration of future urban scenarios through successive approximations. It systematizes one possible way to build answers to a set of critical questions when attempting to compose strategic urban programs.

To this end, we focused on devising a simple sequence of understandable, easy-to-apply Multi Criteria Evaluation instruments which - by means of 'light' 'accounting' calculation procedures - may "help (planners) to think" (Calcagno, 1972).

The deliberate simplicity of this approach - an 'intelligent', transparent and intentional management of elements of analytical and intervention fields, funded on their exhaustive qualitative descriptions and on explicit statements of interests and purposes - prioritises the *political* side of decision – making. Thus, the paper also seeks to contribute to the reflection on the roles and views of social actors when defining and *constructing* urban public scenarios.

First, we discuss the conceptual and political contents and implications of Diagnoses and Scenario-building, in which involved actors (i) elaborate causal interpretations of urban processes, (ii) specify and select strategic trajectories and (iii) compose and structure project portfolios, by (eventually) supporting them through progressive agreements and consensus. Next, we propose a methodological approach to assessing institutional feasibility and political viability of given strategic trajectories. Finally, we discuss some contextual and operational conditions of these analyses.

On the technical side, this framework is originally focused on the interactions among Land Use, Mobility and Energy consumption patterns, three strong determinants of the socio-spatial structuring of territories which - both in Argentina and other Latin American countries - are seldom addressed through transversal, integrated planning approaches. Quite on the contrary, public urban management models – referred to those as well as to other relevant drivers of urban structuring - are most often characterized by remarkable jurisdictional and institutional disarticulation, high technical and thematic fragmentation, *ritual* emphases on bureaucratic *processes* rather than on factual *objectives* or *results*. Accordingly, formulation and evaluation of public urban policies usually present extremely low levels of systemic completeness. It is suggested that - in these types of highly fragmented governance environments - this approach may contribute to making experts' and social actors' views explicit and to enabling transversal thinking. The analysis of diverse structuring, feasibility and viability assessments may – if applied through successive approximations - help planners to reconfigure the strategic composition of public policies, whether by (i) modifying the strategy *portfolio*, (ii) modifying the *sequence* of strategies or (iii)

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incorporating *new* strategies in order to modify the balance between involved actors' rejections and supports, while maintaining the meanings, orientations and aims of the evaluated policy.

Presentation

The paper discusses a methodological approach for accompanying the process of composing strategic portfolios by comparing *institutional feasibility* and *political viability* of alternative urban, territorial and environmental development strategies and planes in multi-agents planning environments. The term 'planner' we use hereinafter does not refer (only) to the technical roles typically played by specific technical governmental agencies, but it conveys the idea of a group of various (technical and non-technical, public and private) actors and stakeholders committed to planning. The notion of '*feasibility*' of a given project refers here to its *practicability,* i.e., "it can be done" (technical and economical aspects) and "it can be conducted" (managerial aspects), whereas its '*viability'* expresses the degree of (political) endorsement and long range involvement and support that it is likely to receive from a relevant set of stakeholders pertaining to various domains who interact in building the ways towards that *future*. Hence, it alludes to its (political) *survivability* or *sustainability*. After discussing some key concepts (Diagnoses, Scenario building), we propose a set / sequence of simple and understandable operational instruments (for assessing institutional feasibility and political viability), which aim to "help (planners) to think" (Calcagno, 1972) i.e., to support participatory and/or multi-stakeholders planning settings by means of "light"[4], "accounting" procedures (Varsavsky, 1971; Heaps,2002).

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1. Diagnoses: Defining *problematic frameworks*.

We define 'plan' as a systemic intervention proposals upon complex urban settings that aim (i) to solve/cover/repair gaps, 'scars', shortages, scarcities, imbalances, asymmetries, inelasticities and/or inequities in urban development trends and/or (ii) to build-up *increasingly sustainable* urban futures. Any given plan combines and articulates measures and actions of different hierarchical levels, each of which aims to solving several components of a certain *problematic framework*, as well as to operate upon those causal interconnections that *explain* current states of urban environments.

These types of *problematic frameworks* result from *diagnoses,* i.e., *explanatory hypotheses* that identify, relate and connect critical matters of diverse nature – usually physical, economic, institutional, political and/or cultural conditions, restrictions, inelasticities and potentialities - which (i) identify which these problems are and (ii) propose an explanation of how and why they occur and how they are connected. These systemic connections and explanations established by a given (individual or collective) actor, lead to identify *articulated sets of critical situations* and their causal processes (the above mentioned '*problematic framework'*). This sets the bases upon which strategies (policies) are designed and proposed.

Elaborating diagnoses is neither an 'automatic' nor an 'evident' operation. Instead, these readings and *hypothetical interpretations* of given portions of 'reality' tend to be *agent-specific*, so that every single set of identifiable homogeneous agents might produce a diagnosis of its own, not necessarily compatible with the ones elaborated by others. Each of their visions is interest - and position -related. In this sense, all of these visions are *political* (rather than *solely* 'technical', no matter how firmly and consistently all of them might be based upon objective, scientific knowledge). It is also apparent that any public policy proposal based on

[4] In this context, 'lightness' refers to the 'weight' of theoretical contents and assumptions incorporated into the evaluation algorithms. A 'loaded' equation or model will usually include behavioral hypotheses and functions, while a 'light' equation or model will consider 'accounting' relations (Varsavsky (1971), Heaps (2002)).

objective descriptions and measurements may generate different, contradictory and conflictive interpretations, depending on these stakeholders' interests and positioning[5]. These may lead to (i) controversial *diagnoses* (i.e., identification of problems + identification of involved actors + explanation of the chains of causal processes which lead to the problems' occurrence) and/or to (ii) conflictive views about the best set and articulation of *strategies* for addressing and solving them along a given time period. Be it as it may, it follows from this that any strategic policy proposal is likely to confront 'turbulent' agent-related environments. If this is true, different instruments may aid members of participatory planning settings in their attempts to build-up consensual definitions and approaches.

[5] This can be easily demonstrated through the analysis of any set of given controversial public policy debates. Four recent examples of very diverse public policy debates in Argentina – namely, (i) taxation of given agricultural exports, (ii) mitigation instruments of transport-related GHG emissions in Metropolitan areas, (iii) regulation of audio-visual markets and domains and (iv) indicators and measurements of poverty levels - clearly indicate that even strongly evidence-based policy formulation processes are subject to acute technical-political confrontations, based on the different interpretations with which each involved stakeholder may read both the original situation as well as the policy's effects.

Scenario building: constructing and structuring strategic portfolios.

This stage deals with building-up scenarios and, hence, structuring *consistent* sets of future-oriented strategies, which explicitly declare which types of choices and decisions are being considered and how planner proposes them to be implemented along time.

We conceive urban scenario-building not (only) as the description of final images of likely or desirable futures, but also as the critical exploration of some of the plausible trajectories that lead towards it (Godet (2001), Gallopin (2004). "Scenarios" not only make explicit 'where do we want to get' but also and simultaneously, 'which roads and paths we are choosing / deciding to travel in order to march towards there'[6]. Consequently, the concept refers to *decisional* and *constructive* processes: the terminal points of any urban scenario are images of future situations *which result* from the implementation of given strategic trajectories.

The *technical* side of consistence is a widely studied matter of conceptual and logical connectivity and reciprocal implications among objectives, purposes, intervention axes, intervention units or modules and their components (projects, measures, actions, instruments), i.e. 'rationality'. Instead, *political* consistence – which deals with (literally) *strategic decisions* and *choices* among sets of alternative trajectories aiming to face and confront given problematic frameworks - is a much less addressed issue.

It has already been argued that diagnoses are *explanatory hypotheses* which may well differ from author to author (in fact, they often do). The same happens with policy and strategy design, a task about which each stakeholder - based on his own logic, interests and positioning - may devise autonomous and even contradictory approaches. Any of these will define objectives and goals, allocate and distribute resources, efforts and results along time, within certain political, social, economic and cultural backgrounds, directions and orientations. Hence, considering these implications, it seems apparent that strategic designs are not (only) *technical decisions* but (mainly) *political inventions*. In sum, this explicitly *political* side of planning is not only a *technical* matter, for it involves a matter of *will*, directionality and orientation of trajectories towards the future, which occur within highly conflictive environments[7].

3. Preliminary formulations

3.1. Characterization of projects/ measures/ actions/ instruments

Once a public policy/strategy proposal is enunciated, its *formulation* comprises the definition and specification of its *components* (i.e., intervention axes, projects, instruments) and their interconnections, all of which should be explicitly grounded upon initial diagnoses.

To illustrate the point, we consider several alternative measures or policy components of a program oriented to reducing transport-based CO2 emissions in urban areas in Argentina, which were analysed as for their technical effects and impacts on quite diverse territorial

[6] It is clear by now that the progressive construction of those territorial strategic decisions and public policies results from the contingent relations, negotiations and balances among contradictory actors and the drivers and forces they deploy.
[7] Very frequently, though, *political* arguments embedded into these proposals and decision-making are linguistically disguised, transformed or hidden under their *technical* appearances. Also, these *technical* appearances often stand for '*the rational*', the '*common sense*' or – in the limit – 'the *only*' sound policy to conduct. These types of *transformations of meanings* are based on 'elusive discourses' or 'semantic traps' (Karol, 2009).

settings: interurban corridors, metropolitan areas, cities of different size levels (Ravella et al., 2009).

i. Incorporation of new technologies: (a) engine improvements and (b) new rigid urban modes in passenger's transportation (tramways);
ii. Modal transferences: (a) shift of freight transportation from trucks to train; (b) shift of passengers' transportation from private cars to public transport and to (c) bicycle);
iii. Better driving practices for freight and public passenger transportation;
iv. Differentiated operating timetables for freight transportation into urban areas.
v. Speed controls in interurban corridors (freight and passenger transportation.)

For identification and comparative purposes, these policy / strategy formulations should first explicit the following basic *strategic* attributes which define each of its components:

(i) site/ scale of application,
(ii) objective: what will the component 'produce' and which are its expected outputs?
(iii) orientation: which critical aspect/dimension of problematic framework does it address?
(iv) purpose: in which ways and directions will it modify the initial problematic situation?
(v) impact: which is its pursued effect upon the causal chain of problematic framework?
(vi) magnitude of expected effects: how much, how many?;
(vii) horizons of expected effects: when, at what speed, for how long?;
(viii) timeframes : the following different aspects and periods should be identified and distinguished: (a) preparation, (b) implementation, (c) maturity, (d) validity, (*these last two are related to the intervention's sustainability*)
(ix) initial identification of involved direct + indirect actors (*connected to analysis of political viability*);
(x) resources involved in component's set up and implementation (*connected to analysis of technical and institutional feasibility*).
(xi) Preliminary estimation and (direct + collateral) costs involved in component's set up and implementation (*connected to economic analyses)*

These basic strategic *components'* attributes may be summarized by means of some selected critical indicators (referred to, e.g., relative and absolute effectiveness, timeframes, necessary resources, preliminary estimation of costs).

Some of the expected effects of each policy's component upon CO2 emissions' yearly reduction are herein summarized - in qualitative ordinal terms - as follows:

Components	Ranking of CO2 % reduction (%/ year)	Ranking of CO2 reduction (10^6 tons/ year)	CO2 reduction-Index # base: average=100
New Technologies	3	5 (Lowest)	35.7
Modal Transference	2	2	133.9
Better driving practices	1 (Highest)	1 (Highest)	139.3
Differentiated timetables	5 (Lowest)	3	89.3
Speed controls	4	4	105.4

Table 1. Ordinal relevance of several CO2 emissions reduction programs
Source: authors' elaboration, based on Ravella et al., (2009)

Eventually, many of the dimensions/indicators considered in 'Technical sustainability of effects' (e.g., 'uncertainties' or 'dependence of effects upon stakeholders' responses') are related to the preliminary estimation of (direct + collateral) costs involved in component's set up and costs associated to removing barriers to implementation and, thus, may provide elements for calculating Marginal cost/benefit, cost/effect, cost/impact and cost/beneficiary conventional coefficients, as illustrated in the following table.

Components	Marginal costs. Index # Base: average($/ton CO2 reduction) = 100
New Technologies	282.3
Modal Transference	181.1
Better driving practices	12.1
Differentiated timetables	23.3
Speed controls	1

Table 2. Marginal cost of implementation of several CO_2 emissions reduction programs (expressed in Index Numbers). Source: authors' elaboration, based on Ravella et al., (2009)

3.2. Individual and comparative analysis of axes' components

Once the previous 'political/technical identity' attributes have been specified and summarized, each *component* is then be characterized in terms of three sets of more sensitive criteria (conceptual integrity, Technical and Social sustainability) The contents and effective meanings of each criterion is defined through several dimensions or indicators. The lists of the ones proposed here are neither fixed nor exhaustive: conversely, they may be adjusted or re-defined by actors involved at participatory planning settings.

3.2.1. Conceptual integrity,

- Degree of centrality of the proposed component in relation to the intervention axis.
- Adjustment of proposed solution to diagnosed problem
- Conceptual, methodological and instrumental consistence between diagnoses, strategic priorities, objectives, activities, products and results.
- Component's accuracy for generating the pursued effect
- Magnitude (volume, time span, speed) of expected direct effect
- Multiplier effects
- Relative weight of Positive vs. Negative effects

3.2.2. Technical sustainability of effects

- Permanence and sustainability of solution to be produced
- Levels of uncertainty associated to the effect (-)
- Degree of predictability (level of uncertainty) of stakeholders' response: is expected behaviour/response to policy "automatic" or does it depend on the modification of behavioural patterns of third parties?
- Elasticity: are expected behaviours/ responses to component elastic or inelastic?
- Applicability: Immediate? Dependent on peripheral / preparatory measures?

3.2.3. Social sustainability of effects

- Component's accessibility (territorial, physical, economical, institutional, cultural) of / to involved actors
- Externalities, collateral, secondary effects: foreseen? identifiable? predictable? controllable?
- Vulnerability of specific social actors to externalities, collateral and/or secondary effects

Each component is evaluated along all three criteria, but, however, should receive one single numerical value on each of them. Each criterion may also have a weight of its own. The component's value may be numerically expressed as 'dummy' variables and measured through 0-10 scales, where '10' represents the best possible situation or positive feedback for enabling the project's implementation (i.e. technical and social sustainability, integrity, certainty, elasticity), while '0' represents the worst one (e.g., ' vulnerabilities, 'contradictions', 'conflicts', 'oppositions', ' inconsistencies', inelasticities'). The actual value allocated to each component along the corresponding 0-10 numerical scales may be consensually established by means of several qualitative assessment consultations and decision-making support procedures - be they by triangulation of independent sources (such as individual key informants' consultation), openly participatory (such as oriented Focus Groups, Assemblies) or through progressive consensus building (such as Delphi surveys, Adjusted Group Assessment and other experts' appraisal approaches).

If each component is evaluated against all three criteria on a simple basis, its Maximum Possible Value (MAX_S) is the addition of maximum values (10) along all three criteria, i.e., 30. If each criterion holds a different weight, (MAX_W) will be equal to the addition of maximum values (10) multiplied by each criterion's weight, along all three criteria. Each component's actual value is then compared to its (simple or weighted) Maximum Possible Value.

Finally, each axis 'component is then evaluated against others on a simple matrix as the following one:

COMPONENTS	Conceptual integrity	Effects			Total value/MAX	
		Technical sustainability	Social sustainability	Total value	Simple	Weighted
Criterion's weight (optional)						
New Technologies						
Modal transference						
Better driving practices						
Differentiated timetables						
Speed controls						
TOTAL						

Table 3. Performance of individual components across specified assessment criteria.
Source: authors'elaboration

Vertical analyses indicate which component performs better/intermediate/worse on each of precedent criteria (or sets of their indicators/criteria). Horizontal analyses indicate each component's different performances across all criteria. "Components' Total Value/MAX" may be calculated either as a simple addition of components' actual values across all criteria(MAX(s)) or, alternatively, as a weighted addition (MAX(w)), assuming that each criterion has a weight of its own, depending on its relative importance for the strategy's general objective. In both cases, each component's actual values are then related to the *maximum possible value* (MAX) of all components.

Thus,

Calculation of each $_i$eth component's 'Simple Total Value' is

$$CTV_i = \sum_1^{\infty} criteria\,(VC_1^{10})/MAX(s) \qquad (1)$$

Calculation of each $_i$eth component's 'Weighted Total Value' is

$$CTV_i = [\sum_1^{\infty} criteria\,(VC_1^{10})\, WCr_1^{\infty})]/\ MAX\,(w) \qquad (2)$$

where

CTV= Component's Total Value
VC_1^{10} = Value of Component on each criterion
MAX(s) = ∑ of maximum possible value of all components
WCr_1^{∞} = Weight of Criterion
MAX (w)= ∑ of maximum possible value of all components multiplied by the criterion's weight

Results may be directly read, interpreted and compared on their own absolute terms or else, they may be standardized calculating several alternative relative measures (percentages, Index Numbers, etc.).

3. Institutional Feasibility Assessment

Institutional feasibility is assessed through *institutional risks* criteria. These *risk* (opposite or inverse to feasibility) *appraisal* criteria may *reduce* each component's total value (CTV, as calculated in Table 1). The consensual building-up of critical dimensions and their corresponding indicators will specify the types of vulnerabilities to institutional risks which may hinder the feasibility of axes' components.

In the following example, institutional risk indicators are addressed through four Risk Criteria (RC) - i.e. Interrelations, Resources, Institutional Capacity and Management Capacity.

RC1: Component's relations with other initiatives

- synergies(+), communalities (+),
- superpositions (-), contradictions (-), conflicts (-).

RC2: Resources (availability, accessibility, control)

- Resource allocation: are quality, quantity and timetables of allocated/accessible resources adequate to proposed objectives, products, results and goals?
- Is availability and quality of involved human resources sufficient and accurate?
- Are the levels of EU's quality, accuracy and experience in transversal inter-institutional coordination adequate for supporting the component's full implementation? Will funding be available in time?
- Are funding decisions, allocations and deliveries fully within the Executive Unit's (EU) control?

RC3: Institutional capacity of agent in charge of component's set- up and implementation

- Is the project a priority endeavour for EU?
- Is EU's institutional capacity adequate for ensuring the component's full implementation?
- Does component's implementation require specific institutional arrangements?
- Does component's implementation require inter institutional coordination?
- Does component's implementation require inter jurisdictional coordination?
-

RC4: Management capacity

- Adequacy of EU's normative and/or regulatory framework
- EU's technical background and managerial experience
- Quality + accuracy of implementation mechanisms and procedures in place
- Quality + accuracy of monitoring and evaluation mechanisms and procedures in place
- Quality + accuracy of control mechanisms and procedures in place

As in the precedent case, each Dimension is consensually defined, (re)formulated and (eventually) weighted). Next, a "very high" to "very low" Risk scale is devised so that Very High risk =0; High =0.2; Upper middle: 0.4; Middle=0.55; Lower middle=0.7; Low=0.85 and Very Low=1(the scale admits all intermediate values).

For every component, 'Maximum Feasibility Value'= $MAX_{(s)}$ is the addition of the total number of criteria multiplied by 1 ('very low' or 'null' risk). For each component, the resulting 'Risk coefficient' (the - simple or weighted- addition of individual risk values divided by MAX) is then multiplied by CTV (1) resulting in an Adjusted Component Value (ACV) which can also be referred to as Component's Institutional Feasibility Value (IFV).

In symbols,

$$ACV=IFV=WRC.\ CTV \qquad (3)$$

where

ACV= Adjusted Component's Value

IFV= Component's Institutional Feasibility Value
WRC= Weighted Risk Coefficient=∑ (risk level * criterion's weight)/MAX

Next, all axes' components are subject to a comparative analysis – among themselves and in relation to the general axis they pertain to – based on their specific institutional feasibility indicators.The following table illustrates the calculation procedure for estimating WRC which, in turn, will multiply the Component's Total Value (equations (1) and (2)), resulting in an Adjusted Component's Value (or 'Component's Feasibility Value). This ACV will either (i) keep the component's original CTV or (ii) reduce it downwards. Thus, a ''null" or "very low" risk coefficient *will not affect* the original CTV; contrarily, *increasing* risk coefficients will greatly *reduce* CTV, making the component progressively *unfeasible* from the institutional standpoint.

	Interrelations	Resources	Institutional Capacity	Management Capacity	Total Risk Value ∑Risk Coef./ MAX
Criterion's weight (optional)					
New Technologies	.4	.3	.5	.8	.5
Modal transference	.5	.6	.5	.6	.5
Better driving practices	.8	.6	.8	.7	.725
Differentiated timetables	.8	.8	.7	.6	.725
Speed controls	.9	.7	.8	.6	.75

Table 4. Calculation of components' total institutional risks values.
Source: authors'elaboration

In the first two examples of the precedent illustration ('new technologies' and 'modal transference'), risk is moderately high and each component looses 50 % of its potential feasibility. Even the component which ranks best ('speed control') will reduce its institutional feasibility by 25%. As an outcome of these comparisons, weights and precedence/consequence relations, the original potential priority of those less efficient, effective and feasible components is reduced (and they might even be discarded). Also, new collateral and supporting components may be added, in order to improve the institutional feasibility of those ones with high implementation risk levels (which, in turn, will increase the original component's marginal implementation cost).

Finally, all selected components may be prioritised, their ranking depending on their (i) degree of centrality in relation to the general strategy, (ii) level of urgency or criticality, (iii) multiplier effect, and/or alternative sets of planning priorities. The result of this procedure is a preliminary *sequence of implementation* of selected/prioritised components within a given intervention axis, in accordance with a general strategy/policy.

While precedent phases have been approached through simple "accounting" procedures (Varsavsky, 1971, Heaps, 2002), they may also be addressed by means of 'light'[8] calculation instruments (such as 'decision trees' (van Middelkoop et al., 2007) and some of the several multi-criteria decision analysis techniques and procedures (MCDA) available.

4. Political viability assessment

Political viability assessment enables planners to explore varying degrees of actors' agreement or opposition, as a response towards alternative formulations of sets of strategies and their components. By identifying general and particular positions and interests of relevant stakeholders, these types of scenarios' assessments may relate alternative sets of [strategies

[8] In this context, 'lightness' refers to the 'weight' of theoretical contents and assumptions incorporated into the evaluation algorithms. A 'loaded' equation or model will usually include behavioral hypotheses and functions, while a 'light' equation or model will consider 'accounting' relations (Varsavsky (1971), Heaps (2002)).

(…)] to stakeholders' specific supports and/or rejections towards diverse strategy's components.

The prioritised sequence of strategic components already assessed in precedent steps can now be evaluated as for its *political viability*, based oh the following assumptions:

i. Each stakeholder embodies and expresses a distinctive combination of diverse basic *logics* (economic, reproductive and/or political) and hold diverse social and political positions (i) in society at large, (ii) related to the general political climate and (iii) in relation to the proposed interventions.

ii. Each stakeholder holds and builds diverse and varying 'power configurations', be they based on his own resources and capacities or on his disposition and ability to convince and unite others or to negotiate new alliances and/or coalitions.

iii. The proposed set of interventions (its weights, its composition, its sequence) affects different stakeholders in distinct manners, degrees and time horizons. Stakeholders' approvals or rejections are a function of the way in which they perceive that each component affects each one of them, positively or negatively.

iv. Stakeholders' initial positions towards each component may vary along time, inasmuch as these might be successively reformulated and accommodated to their diverse demands, pressures, negotiations and transactions.

v. The *political viability and sustainability* of any proposed individual intervention is a function of the degrees of consensus that it may attract and capture, along successive program's reformulations. However, the weight of each component (which results from the *Adjusted Component Feasibility Value*) also expresses its final degree of centrality or criticality to the strategy as a whole. Hence, the higher the component's value, the less negotiable it will be.

Also this *political viability assessment* may be addressed through a variety of methodological approaches. Calcagno et al. (1972) and Arentze & Timmermans (2003) have proposed various types of mathematical modeling and simulation. Whatever the procedure, it is required that it may identify, name, relate, order (qualitatively) and measure (numerically) (i) actors' antagonisms and affinities among them and in relation to the proposed strategies and their components, (ii) need for, likelihoods of, and possible instruments for stimulating and channeling transactions, (iii) need for modifying the composition and/or sequence of proposed strategy's components.

In what follows, we continue proposing simple, "accounting", easily usable approaches. To this end, we 'recover' an "Alliances and Conflicts Mapping Technique", originally developed by Robirosa (1978). Since then, its simplicity has demonstrated great applicability and communication abilities along time in very diverse planning settings.

The (potential or actual) actors' reactions to any given component can be viewed in a matrix as the following one (see table 3).

In its original design, this matrix enables planners to estimate or measure (in qualitative ordinal values) each actor's position (upon a 7 points scale, ranging from 'definitely against' through 'definitely in favour') towards each given component. This value may be expressed as a continuous 1-7 range or else, as a [-3/+3] range, with '0' indicating indifference or neutrality.

Horizontal additions indicate each component's potential antagonism level (contradictory coexistence of favourable and unfavourable positions as they are embodied in different actors). Vertical additions indicate each actor's compound position towards each and every component of the intervention axis, thus showing which aspects he supports and which ones he rejects.

Based on these two analyses and profiles (component's conflictive character and actors' combined orientations towards program), two independent rankings are elaborated – one corresponding to all axis' components and the other one corresponding to all involved actors – such that planner can easily define (i) which component captures higher, intermediate and lower adhesion levels and (ii) which actors are strong supporters of (and strong opponents to) the whole intervention axis and to each individual component .

Components ↓		Adjusted Component Feasibility value (CTV * Risk coefficients)	Actors → Municipality	Private freight companies	Private freight drivers	Private vehicle owners	Urban freight operators	Bicycle riders	Public transport passengers	Vehicle repair workshops	Others	Comparative Conflict level: Addition	Comparative Conflict level: Ranking
New technologies													
Modal transference													
Better driving practices													
Differentiated timetables													
Speed controls													
Comparative Alliance/Opposition	Addition												
	Ranking												
Actors' weight													
Weighted addition													
Weighted ranking													

Table 3. Illustrating an 'Alliance and Conflict Map' towards Transport-based GHG emissions reduction's Policy. Source: own, based on Robirosa (ibid.)

This 'revised' version of the original matrix adds a set of weightings. First, each component has a weight of its own (column 2), which derives from the "Adjusted Component's Feasibility Value" (as calculated in Table **2**.) This 'Value' enables planner to set the possible level of negotiation and transaction with opposing, neutral or indifferent actors.

Next, also each actor holds a weight (row 8) , which expresses the attributed or perceived importance on the political scenario (based on his alliance capacity, availability of economic, technical or political resources). This weight – which may vary from 0.1 through 1.0 - refers to the importance for the planner to be able to count on this actor as a supporter of the analysed component. So the actor's weight multiplies his position – support, indifference, neutrality or rejection - towards the component. All these individual values, their additions, their weighted results and rankings may be standardized in order to facilitate comparisons.

The successive analyses of several *political viability assessments* may orient planners about how to reformulate proposed intervention; they may also feed into the reconfiguration of the composition of public policies, whether by (i) modifying the strategy *portfolio*, (ii) modifying the *sequence* or *priority* of components within strategies or (iii) incorporating *new* collateral or supporting components (which should also be previously analysed as for their institutional feasibility), in order to modify the balance between involved actors' rejections and supports, and increase stakeholders' support to program while maintaining the meaning, orientation and intention of the evaluated strategy.

5. Discussion

The three aspects of urban scenario-building addressed in this paper – namely, (i) structuring a strategic portfolio of urban interventions along time, (ii) assessing its institutional feasibility and (iii) assessing its political viability – are conceived as part of a methodological sequence.

However, it should be stressed that the value of this contribution, if any, does not come out of the calculations we propose but from the questions we propose that 'planners' (stakeholders intervening in participatory settings) formulate. Its implementation may support them in strengthening the consistence of strategies and reinforcing their ability for being implemented.

Previous experiences suggest that approaches like the one outlined here may fit adequately into highly volatile and fragmented governance environments.

References

Arentze, T. & Timmermans, H.J.P, (2003). *A multi-agent model of negotiation processes between multiple actors in urban developments: a framework for and results of numerical experiments.* Planning and Design, Vol. 30, No. 3:391-410.

Calcagno, A.E., Sáinz,P., De Barbieri, J. (1972), Estilos Políticos Latinoamericanos, FLACSO, Santiago de Chile/Buenos Aires.

Gallopin, G. (2004), La sostenibilidad ambiental del desarrollo en Argentina: tres futuros. CEPAL, Santiago

Godet, M. (2001), Creating Futures . Scenario Planning as a Strategic Management Tool . Economica Brookings diffusion, February

Heaps, C.(2002),Integrated Energy-Environment Modeling and LEAP, SEI Boston,Tellus Institute.

Karol,J. (2009), Building-up management models towards urban sustainability.UPE 8 Conference, IUPEA, Kaiserslautern, March

Ravella,O., Giacobbe,N., Aón, L.,Frediani, J. (2009) Transport and Greenhouse Gas Emissions: Mitigation Measures. ESMAP, Energy Efficient Cities Initiative: Tools and Assessment. 5th Urban Research Symposium. Cities and Climate Change. June 28-30, Marseille, France

Robirosa, M.C. (1978), Matriz de análisis de alianzas y conflictos, Programa UNESCO/ FLACSO de Planificación y Gestión de Asentamientos Humanos, FLACSO, Buenos Aires.

van Middelkoop, M., Arentze, T.A., Borgers, A.W.J. , Timmermans, H.J.P. (2007). *Decision tables*., Journal of travel and tourism marketing. vol. 21. no. 4:109-120.

Varsavsky, O. (1971), Proyectos Nacionales. Edit. Periferia, Buenos Aires