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A DELIBERATIVE-PARTICIPATIVE PROCEDURE FOR SUSTAINABLE URBAN MOBILITY – FINDINGS FROM A TEST IN BARI (ITALY)

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A deliberative-participative procedure for sustainable urban mobility – Findings from a test in Bari (Italy)

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Abstract

Participation is advocated as an essential component of strategies and policies for sustainable urban mobility. This paper refers to the overall literature on participation and provides the design, test and ex-post evaluation of a deliberative-participative procedure (DPP) aimed at selecting a new scheme for the regulation of traffic and parking in the "Murat", a central area of Bari (Italy). The potential benefits and shortcomings of participation were explicitly considered when designing a DPP which integrates three tools: an opinion poll and two deliberative arenas – the "stakeholder dialogue" and the "citizens' jury". The ex-post evaluation of the test confirmed ex-ante design choices. The use of understandable techniques for deliberation and assessment helped participants to generate an unambiguous final result which was based on the "hybridisation" of the alternative schemes proposed to participants at the beginning of the procedure. The continuous reference to citizens' opinion avoided that more powerful stakeholders may capture the whole procedure. Only a "frustration" effect was generated because of the limited involvement of the Municipality of Bari, thus confirming that the involvement of the relevant Authority is an essential requisite for successful participation. We suggest that the generation of new knowledge and learning could be further assured by the participation of citizens and stakeholders to the definition of the alternatives they will assess later.

Keywords: Deliberation, Participation, Sustainable mobility, Traffic scheme, Bari.
Jel Classification: R42, Q58, H43.

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1. Introduction

Many scholars advocate the use of participatory techniques to define and evaluate strategies and interventions for sustainable urban mobility (Willson, 2001; Booth and Richardson, 2001; Hensher and Brewer, 2001; Banister et al., 2007; Banister, 2008; May, 2009; Baumann and White, 2013; Xenias and Whitmarsh, 2013). Practical applications of a participatory approach are presented in several works on transportation, which are different in scopes, geographical dimensions and sectors: some focus on freight (e.g., Dablanc et al., 1998; Hensher and Brewer, 2001; Macharis et al., 2010), but most of them consider the mobility of individuals at a sub-national scale (see Appendix A for a review of the most relevant applications and their results).The latter use original techniques to involve citizens and stakeholders in the design and implementation of urban and regional transport policies, in order to gather preferences and opinions (Anson and Willis, 1993; Hodgson and Turner, 2003; Rye et al., 2008; Stangl, 2008; Gil et al., 2011; Ibeas et al., 2011; Machler and Golub, 2013) or to increase public policy legitimacy (Taylor and Tight, 1997; Baumann and White, 2013). Learning effects are explicitly targeted only in four cases: mutual recognition (Baumann and White, 2013), changing preferences (Lowry, 2010), generation of new alternative schemes (Violato et al., 2014) and shared visions (Milakis and Athanasopoulos, 2014). Only one case (Anson and Willis, 1993) addresses explicitly the potential shortcomings of participation, with reference to the lack of political support.

A gap is apparent between the current use of participatory techniques as tools for transport policy and the overall literature on participation in public decision. Even if the latter confirms that participation may increase the legitimacy of public decision and improve its effectiveness – mostly by gathering preferences and opinion – it also stresses that a more structured and dynamic approach is much more fruitful (Pimbert and Wakeford, 2001). This point is consistent with the wider idea that democracy strengthens if: a) citizens can deliberate before public decision takes place (thus leaving room for collective learning and preference evolution); b) citizens can vote directly, without the intermediation of elected representatives (thus avoiding the risk that public decision is "captured" by powerful interest groups) (Cooke, 2000). Such an idea is also found in the criticisms towards standard evaluation tools, such as cost-benefit and multi-criteria analyses (Gowdy, 2004; Vatn, 2009). Being based on the current resource distributions and structure of preferences, these tools are not able to incorporate visions and values that are alternative to the status quo and – maybe most important – they do not ease the generation of knowledge and shared visions. As brilliantly argued by Arild Vatn (2009, p. 2211): "[we must] move from *aggregating* individual measures or bids to reasoning over, and potentially *agreeing* on common priorities". Many scholars stress that this is especially needed when sustainability issues are at stake (e.g., Martinez-Allier et al., 1998; Sagoff, 1998; O'Neill and Spash, 2000; Smith, 2003).

Consequently the direct involvement of citizens and stakeholders into deliberative arenas is considered as an effective way to generate: a) mutual recognition and learning (i.e., "opening up" participation), and b) qualitative and quantitative outcomes which help make the final decision (i.e., "closing down" participation) (Stirling, 2008; Dreyer and Renn, 2011). But the relevant literature also signals that three main potential shortcomings of participation should be taken under control (Stagl, 2007): 1) the "black box" effect that takes place when participants cannot go through the whole process and/or if the applied tools are too complex; 2) the "capture" effect that results from the ability of more powerful or "vocal"

interest groups to influence the decision process and its results (O'Neill, 2001); 3) the "frustration" effect that is generated when the decision process does not produce useful results or when the actual decision-maker (usually a public body) does not acknowledge its outcome.

This paper aims at filling the above gap by testing a deliberative-participative procedure (DPP) for sustainable urban mobility that: a) is designed with the explicit aim of maximising potential benefits (i.e. "learning" and "effectiveness") and of reducing potential shortcomings (i.e. "black box", "capture", "frustration"); b) is followed by a structured assessment of the benefits and shortcomings actually generated. In particular, three participatory tools are integrated in the tested DPP: an opinion poll and two deliberative arenas – the "stakeholder dialogue" (Clark et al., 1998), which has the task to carry out a simplified multi-criteria analysis, and the "citizens' jury" (Kenyon et al., 2003), which has the "final word" on the results of the DPP. The ex-post assessment of the DPP is based on the evaluation of two sets of objective and subjective statements; participants to the stakeholder dialogue were asked to give their opinion on the latter.

The test was carried out with the goal of selecting a traffic and parking scheme that may reduce the negative impact of motorised circulation in the central district of Murat, in the city of Bari (Italy). The Murat district was chosen because it is a multifunctional area, featuring complex and diverging interests that allow a DPP to be fully tested.

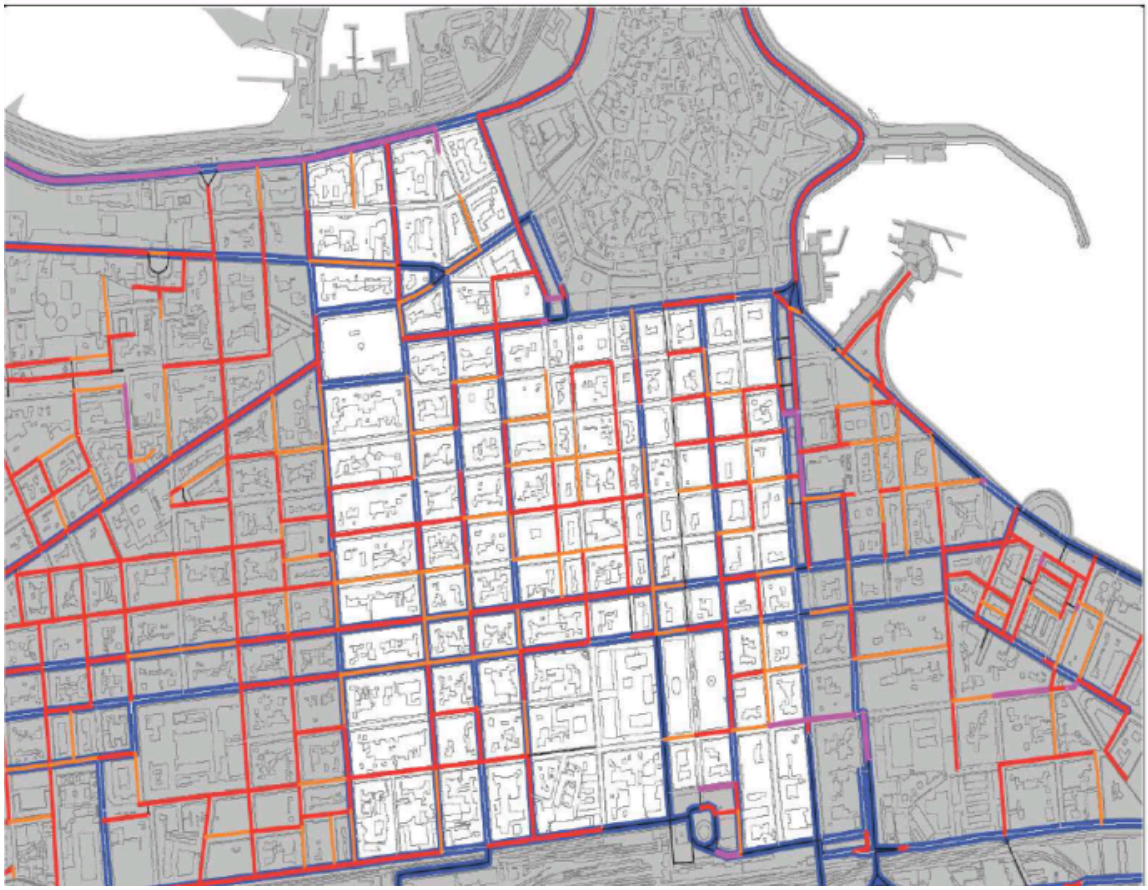
The following four paragraphs of the paper provide: the design of the DPP and of its evaluation (§2); the analysis and discussion of the results of the DPP (§3 and §4); conclusions and some hints on transferability (§5).

2. Methodology

2.1. The test area

The DPP was tested in the Murat district, a central area of the city of Bari – the regional capital of Apulia region (Italy). Bari counts about 316,000 residents and is part of a metropolitan area of more than 1.2 million inhabitants. The size of Murat is 1.05 km2 and the district counts almost 17,000 inhabitants; population density is very high compared to the average city value of 3,000 persons/km2. Since 2008, the nearby historical centre is a limited traffic zone (LTZ), and a restricted parking zone (RPZ) was introduced in the inner part of the city, Murat included. The RPZ allows residents to freely park with a yearly pass costing 30 Euros, whereas non-resident must pay per parking hour. Even with the RPZ an offer of 4,900 parking slots and an actual average of more than 5,000 parked cars are reported, day and night (see also Figure 1). Since 2007, Murat has hosted the first Bari's pedestrian area, which became the most important urban mall over the time. In 2011, pedestrian areas were extended.

Figure 1. Parking conditions in the Murat



Legend: Blue=Main roads; White=No parking roads; Orange=Roads with all parking slots occupied; Red=Roads with more parked cars than parking slots; Violet=Roads with illegal parking only.
Source: Municipality of Bari, 2009

After extensive talks with local stakeholders and experts, we decided that the Murat represents a relevant test site because it is a multifunctional area with relevant connections with the whole metropolitan area, where different (and possibly diverging) needs, interests and visions are at stake. Residents are more interested in the local condition of parking and circulation, while non-residents and shop-keepers are more concerned with accessibility to (and through) the area; grassroots NGOs have a vision about the development of the area which is different from that of business NGOs; the use of space is contended between different categories: vulnerable users, car users, public transport users, people accessing to specific attractive points (shopping area, university, theatre, city hall, chamber of commerce, etc.). Lastly, the preliminary analysis showed an intense local debate about the need of changing parking and circulation schemes in the Murat, with several different stakeholders aiming at different solutions (wider pedestrianisation, stricter regulation of circulation and

parking for non-residents, streets reserved for public transport, low-speed zones, etc.). This represented an ideal setting for our test.

2.2. DPP design

Scholars, practitioners and policy makers follow several approaches to the design of a DPP, mostly based on structured deliberation and a more or less simplified multi-criteria analysis. Quantitative-oriented tools best address operational decisions that refer to well defined issues; on the contrary, more deliberative-oriented ones best address issues that feature several interests at stake, and are preferred when just an input to the decision process is needed (Stagl, 2007).

In this test a deliberative-oriented approach was followed. The DPP included six phases as shown in Table 1. Each phase focused on specific actors and tools and was expected to deliver an outcome to be used as input to the following phase.

The test was aimed at selecting a new parking and traffic scheme for the Murat. A 'strategic framework' – based on 'strategic goals' and 'alternative schemes' - was first defined and then used through the DPP.

Table 1. The deliberative-participative procedure (DPP): phases, actors, tools and deliverables

PHASE	ACTORS	MAIN TOOL (TECHNIQUES)	DELIVERABLE
1	Local experts	Preliminary analysis of the current situation. (Desk analysis of relevant figures, documents and official plans; Face-to-face interviews with local experts)	First version of the strategic framework (strategic goals + alternative schemes)
2	Stakeholders	Stakeholder dialogue - 1st meeting (Guided discussion)	Final version of the strategic framework.
3	Citizens	Opinion poll (Sample survey; Computer-Assisted Telephone Interviewing–CATI)	Evaluation of strategic goals and alternative schemes.
4	Stakeholders	Stakeholder dialogue (E-mail survey)	Evaluation of strategic goals.
5	Stakeholders	Stakeholder dialogue - 2nd meeting (Guided multi-criteria analysis)	Evaluation and ranking of alternative schemes.
6	Citizens	Citizens' jury (Guided discussion)	Confirmation, amendment or rejection of the results of the DPP.

Four tools were used (See Appendix B for methodological details on each tool):
- Preliminary analysis (phase 1). Secondary data analysis and in-depth interviews with local experts were carried out in order to get a better understanding of current transport trends, public debates and future plans and policies. On these bases, a preliminary version of the strategic framework was delivered.
- Stakeholder dialogue. This is a deliberative tool that allows stakeholders to perform a simplified multi-criteria analysis and was articulated as follows: a first meeting to deliver the final version of the strategic framework (phase 2); a survey by mail to weight the strategic goals (phase 4); a second meeting to rank the alternative schemes (phase 5). At the beginning of the second meeting participants were informed of the result of the opinion poll (see below). Participants represented all relevant interest groups.
- Opinion poll (phase 3). A sample of citizens evaluated separately each strategic goal and ranked the alternative schemes defined by the stakeholders. A qualitative scale was proposed to respondents.
- Citizens' jury (phase 6). This deliberative tool took place only once to ratify, amend or reject the result of the whole DPP. Participants were selected out of a number of respondents to a public call on the basis of their socio-demographic profile.

Table 2 provides an overview of the rationale for the design of the tested DPP in connection with the potential benefits and shortcomings of participation highlighted by the literature. In particular: a) to reach unambiguous and useful final results, unanimous decisions about the ranking of the alternative schemes have been requested to stakeholders and citizens participating to deliberative arenas; b) to improve the generation of knowledge and learning among stakeholders, open discussion on the definition and evaluation of the strategic framework was adopted; c) to ease the participation of stakeholders to the collective evaluation of alternative schemes, a simplified multi-criteria technique was used; d) to reduce the stakeholders' influence on the final result of the DPP, we used the citizens' jury as the last resort deliberative arena.

Also the timing of the procedure was carefully designed; in particular, deliberation on the ranking of alternatives took place in both the stakeholder dialogue and the citizens' jury after the opinion poll was carried out. The constant reference to citizens' opinion was used to reduce the risk that some participants prevailed on others and capture the deliberative arenas and the whole DPP.

2.3. DPP evaluation design

Two sets of statements were arranged to assess the actual level of benefits and shortcomings generated by the DPP (Table 3). One was based on the on-going objective analysis of the DPP; whilst the second was based on the ex-post subjective evaluations of the participants to the stakeholder dialogue, using a 5-point Likert scale.

Table 2. Potential benefits and shortcomings of deliberation and participation and resulting design choices

POTENTIAL BENEFITS	DEFINITION	DESIGN CHOICE TO INCREASE THE LIKELIHOOD OF THE BENEFIT	INVOLVED TOOLS
"Effectiveness"	An unambiguous result is generated which is useful for a public decision	Unanimous final decision Final decision expressed as a ranking of alternatives	Stakeholder dialogue and citizens' jury Opinion poll and stakeholder dialogue
"Learning"	New knowledge is generated and shared by participants	Content and number of the alternative are not predefined Deliberation	Stakeholder dialogue Stakeholder dialogue and citizens' jury
POTENTIAL SHORTCOMINGS	DEFINITION	DESIGN CHOICE TO REDUCE THE RISK OF THE SHORTCOMING	INVOLVED TOOLS
"Black Box"	Tools and techniques are not fully understood by participants	Simplified multi-criteria analysis	Stakeholder dialogue
"Capture"	The result is influenced by more powerful and "vocal" participants	Balance of interests Reference to the results of the opinion poll Final decision by the citizens' jury	Stakeholder dialogue and citizens' jury Stakeholder dialogue and citizens' jury Citizens' jury
"Frustration"	The result is not acknowledged by the relevant public authority	Involvement of the relevant public authority	The whole DPP

Table 3. Objective and subjective statements for the ex-post evaluation of the deliberative-participative procedure (DPP)

	OBJECTIVE STATEMENTS	SUBJECTIVE STATEMENTS
POTENTIAL BENEFITS		
"Effectiveness"	1) The DPP generated unambiguous results.	1) The DPP generated intelligible results.
"Learning"	2) Content and number of the alternatives were modified.	2) I learnt something new during the DPP. 3) I could better understand the opinions of other participants to the DPP.
POTENTIAL SHORTCOMINGS		
"Black Box"	3) Participants exited the DPP or complained because deliberative and evaluation techniques were too complex.	4) Deliberative and evaluation techniques were easy to understand.
"Capture"	4) Result of the stakeholder dialogue and of the opinion poll were consistent. 5) The citizens' jury ratified the results of the stakeholder dialogue.	5) More assertive and/or more powerful participants influenced the discussion and the results of the DPP.
"Frustration"	6) Participants exited the DPP or complained because the results of the DPP were not acknowledged by the Municipality of Bari.	6) The Municipality of Bari will implement a new traffic and parking scheme in the Murat. 7) The Municipality of Bari will give due consideration to the results of the DPP.

3. DPP implementation

The first version of the strategic framework emerging from phase 1 of the DPP (Preliminary analysis) is made of four strategic goals and four alternative traffic and parking schemes. Goals refer to the social and economic dimensions of transport sustainability (see Appendix C for details); while alternative schemes incorporate different degrees of private circulation and parking restriction.

During phase 2 of the DPP (Stakeholder dialogue – First meeting) four issues arose. First, some stakeholders proposed to eliminate two goals (promotion of cultural heritage, and touristic and commercial development) because part of the other two goals (liveability, and accessibility). Second, some stakeholders proposed to extend the scope of the strategic goals, including not only the Murat district, but the whole city, because of the apparent interconnections. Third, some stakeholders proposed to better coordinate the DPP with the

other current urban mobility plans, because of apparent overlapping. Fourth, some stakeholders stressed parking as the main issue to be addressed. Following such indications, the preliminary version of the strategic framework was partially modified. Stakeholders decided to keep all the four goals, because this could ease the debate about some specific issues currently discussed (e.g. the effects of pedestrian areas on local shopping). Goals were modified in the scope, except for socialization spaces, to include both Murat and the whole city. The last two issues (integration with other plans and focus on parking) did not lead to relevant changes to the DPP, but only required a better focus on the consequences of the alternative schemes

Furthermore, we removed some details (e.g. which specific streets to be reserved to public transport or to pedestrians) that drew the attention of stakeholders though they were not relevant to compare the different approach incorporated into each alternative scheme (see Tables 4 and 5 for details on the final version of the strategic framework).

In phase 3, the opinion poll was used to gather citizens' evaluation about the strategic framework (see Tables 6 and 7 for details). In phase 4 stakeholders confirmed the same ranking of goals as expressed by citizens (Table 8).

Finally, table 8 reports the results of phase 5 (stakeholder dialogue – second meeting). Scheme 3 (restricted circulation + increased pedestrianisation) scored the highest rank, also because it was considered an absolute priority to reach both the goals of accessibility and touristic/commercial development. Schemes 2 (restricted traffic) and 4 (full pedestrianisation) were considered relevant, but not a priority, for almost all goals, thus reaching an intermediate positions in the ranking. Scheme 1 (moderated traffic with no restrictions) ranked low, mostly because it was considered useless or negative with reference to two goals (accessibility and promotion of cultural heritage). It is worth to notice that even using the relative weights coming from the opinion poll, the rank would not change.

It must be stressed that during the 2nd stakeholder meeting, a new hybrid scheme emerged from discussion featuring restricted traffic and few corridors for free circulation (i.e., a combination of scheme 1 with scheme 2 or 3).

The citizens' jury closed the DPP: all members – except one – found an agreement on the hybridised version of the scheme 3; this was considered a way to integrate the results emerging from the stakeholder dialogue and the opinion poll, including the opinion of 40% citizens that considered the option of free circulation a priority 1.

Table 4. Stakeholder dialogue - Strategic goals: final version

STRATEGIC GOALS	DESCRIPTION
Improving liveability	The proposed traffic and parking scheme should reduce air and noise pollution as well as accidents in the whole city, and especially in Murat, where pedestrian spaces that improve liveability should be created.
Improving accessibility	The proposed traffic and parking scheme should reduce congestion and improve accessibility with public transport, by bicycle and on foot to the whole city, and especially to inner parts, as Murat.
Promotion of cultural heritage	The proposed traffic and parking scheme should reduce negative effects of motorized circulation on local cultural heritage, both in terms of accessibility and conservation. Such effects should be greater in the historical centre and Murat.
Touristic and commercial development	The proposed traffic and parking scheme should improve touristic and commercial development in the whole city. Such effects should be greater in the historical centre and Murat.

Table 5. Stakeholder dialogue – Alternative schemes and their constituents: final version

TRAFFIC AND PARKING SCHEMES	MAIN CONSTITUENTS
Scheme 1. Moderated traffic	• Free circulation of private motorized vehicles
Scheme 2. Restricted traffic	• Circulation is reserved to residents and commercial vehicles
Scheme 3. Partial pedestrian area + restricted traffic	• Few streets are reserved to the circulation of residents and commercial vehicles • All other streets are pedestrian areas
Scheme 4. Full pedestrian area	• All Murat is a pedestrian area
COMMON CONSTITUENTS	
• Parking in Murat and along its edge is toll and reserved to residents and commercial vehicles • Few corridors are reserved to public transport • Few pedestrian areas are available • Speed limit is 30km/h • Cyclists and pedestrians have priority	

Table 6. Opinion poll – Evaluation of strategic goals: % of respondents that consider the strategic goal "a priority".

	STRATEGIC GOALS			
	Improving liveability	Improving accessibility	Promotion of cultural heritage	Touristic and commercial development
All residents in Bari	68.1	66.7	56.3	58.3
Residents in Murat and historical centre only	61.3	68.8	50.2	53.3

Table 7. Opinion poll – Evaluation of alternative schemes (% distribution of respondents).

		ALL RESIDENTS IN BARI %	RESIDENTS IN MURAT AND HISTORICAL CENTRE ONLY %
Scheme 1. Moderated traffic	Priority 1	39.6	35.7
	Priority 2	12.5	8.7
	Priority 3	12.1	19.7
	Priority 4	35.8	35.9
	Total	100.0	100.0
Scheme 2. Restricted traffic	Priority 1	21.9	28.6
	Priority 2	40.6	44.3
	Priority 3	28.7	22.7
	Priority 4	8.8	4.4
	Total	100.0	100.0
Scheme 3. Partial pedestrian area + restricted traffic	Priority 1	14.3	19.6
	Priority 2	39.1	36.1
	Priority 3	42.4	36.6
	Priority 4	4.2	7.7
	Total	100.0	100.0
Scheme 4. Full pedestrian area	Priority 1	24.2	16.1
	Priority 2	7.9	10.9
	Priority 3	16.7	21.0
	Priority 4	51.2	52.0
	Total	100.0	100.0

Table 8. Stakeholder dialogue – Evaluation of alternative schemes.
(Evaluation scale: 0=useless or negative; 1=useful but not urgent; 2=relevant; 4=absolute priority).

TRAFFIC AND PARKING SCHEMES	STRATEGIC GOALS (WEIGHT)				WEIGHTED EVALUATION
	Improving liveability (0.31)	Improving accessibility (0.29)	Promotion of cultural heritage (0.18)	Touristic and commercial development (0.22)	
Scheme 1. Moderated traffic	1	0	0	2	0.74
Scheme 2. Restricted traffic	2	2	1	2	1.82
Scheme 3. Partial pedestrian area + Restricted traffic	2	4	2	4	3.01
Scheme 4. Full pedestrian area	2	2	2	2	2.00

4. The objective and subjective evaluation of the DPP

4.1. Results of the evaluation

Results of the objective evaluation are:

1) The DPP generated an unambiguous result. The preference for the restricted traffic options (Scheme 2 and 3) is evident in both stakeholder and citizen evaluation; even the opportunity to integrate some elements from Scheme 1 was shared by both groups of participants.

2) The DPP has generated a learning effect which can be detected by changes to both strategic goals (that were extended to the whole urban area) and traffic schemes (with the generation of a hybrid option).

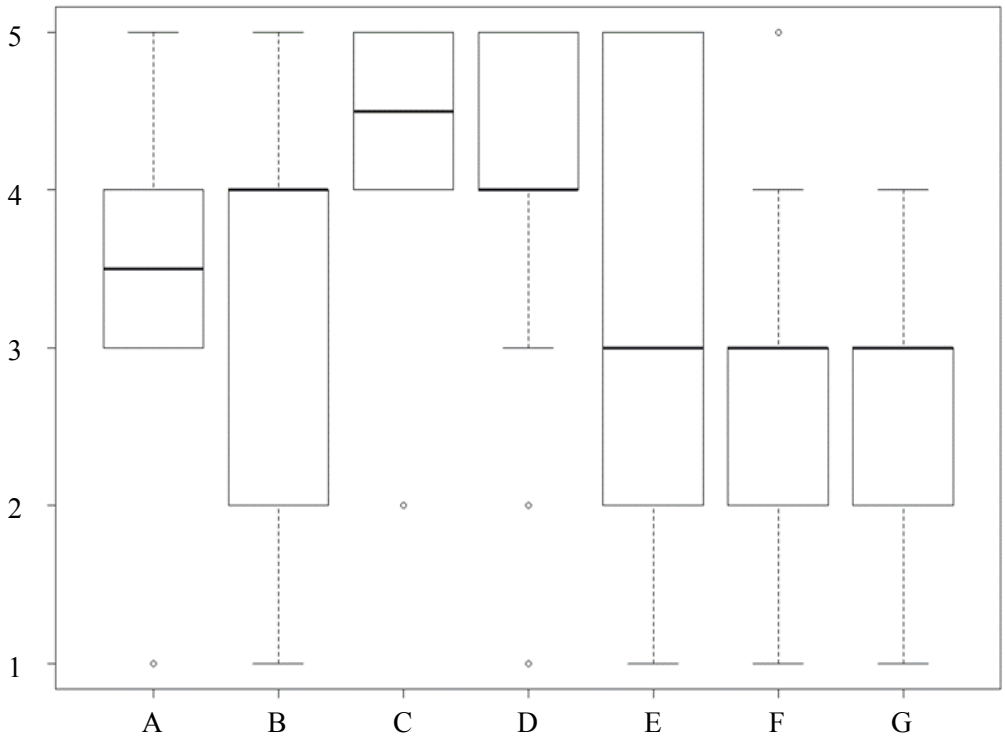
3) No participants exited the DPP because the used techniques were too complex.

4) No "capture effect" was highlighted because results of the stakeholder dialogue were consistent with the ones from the opinion poll and citizens' jury.

5) "Frustration" was the only negative effect generated by the DPP. Most participants in both deliberative arenas complained about the limited involvement of the Municipality of Bari and about the consideration of the DPP as a test and not as a basis for actual decision.

Figure 2 shows the results of the ex-post subjective evaluation of the DPP as expressed by participants to the stakeholder dialogue. The median of all statements is at least 3, indicating that there were not relevant critical elements for the majority of participants. Participants considered the procedure very clear, and understanding each other as the main achievement; the generation of new knowledge shows a high value as well, but a higher dispersion. The evaluation on the capture effect features a median of 3 and the highest dispersion. The last two statements – related to the frustration effect – show less positive results.
Correlation analysis between statements, by using Kendall tau test, did not show significant results except for "understanding" and "clear procedure" statements (Table 9). We tested such correlation using the Kendall tau partial correlation (pcor) analysis to eliminate the influences of other variables on the correlation. The pcor returns a low value of 0.64 significant at the 0.01 level. It does not seem possible to state any specific correlations between the different statements.

Figure 2. Stakeholders' evaluation of the deliberative-participative procedure (DPP)



Legend:
(x-axys) A=The DPP generated intelligible results; B=I learnt something new during the DPP; C=I could better understand the opinions of other participants to the DPP; D=Deliberative and evaluation techniques were easy to understand; E=More assertive and/or more powerful participants influenced the discussion and the results of the DPP; F=The Municipality of Bari will implement a new traffic and parking scheme in the Murat; G=The Municipality of Bari will give due consideration to the results of the DPP. (y-axis) 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree

Table 9. Ex-post stakeholders' evaluation – Correlation analysis between statements

	A	B	C	D	E	F	G
A	1						
B	0.37	1					
C	0.27	0.53[a]	1				
D	0.50[a]	0.54[b]	0.79[b]	1			
E	-0.19	0.11	-0.18	-0.35	1		
F	0.17	-0.14	-0.54	-0.29	0.04	1	
G	0.39	0.04	-0.19	0.03	-0.17	0.41[a]	1

[a]Correlation is significant at the 0.05 level (2-tailed)
[b]Correlation is significant at the 0.01 level (2-tailed)
Legend: A=The DPP generated intelligible results; B=I learnt something new during the DPP; C=I could better understand the opinions of other participants to the DPP; D=Deliberative and evaluation techniques were easy to understand; E=More assertive and/or more powerful participants influenced the discussion and the results of the DPP; F=The Municipality of Bari will implement a new traffic and parking scheme in Murat; G=The Municipality of Bari will give due consideration to the results of the DPP.

4.2. Discussion

The evaluation of the DPP is overall positive. The only relevant shortcoming of the DPP emerging from both the objective and subjective evaluations refers to the "frustration" effect. Indeed we think that the Municipality of Bari feared that results of the DPP could actually reduce the legitimacy of current and future policies. This is why the representatives of the Municipality presented the DPP to all participants as a "simulation" that would not have supported actual decisions and actions.

The lacking of full support from the Municipality generated two specific problems: (i) several citizens and stakeholders – who would have preferred to participate to a real DPP and not to a test – questioned the overall credibility of the DPP; (ii) the organization of the citizens' jury suffered a serious delay because of the resistance of the Municipality to organize the call for participation. Even if it can sound like a platitude, it is worth stressing that no design choice – of both the whole DPP and each deliberative tool – would have reduced the risk of a limited involvement of the Municipality of Bari. In more general terms: the formal involvement of the relevant public decision-maker is a crucial prerequisite to reduce the likelihood of the "frustration" effect.

Other potential shortcomings did not manifest: the use of simplified techniques – and, in particular, the use of a simplified multi-criteria analysis to support the stakeholder dialogue – prevented the "black box" effect; the continuous reference to citizens' opinion (expressed via the opinion poll or in the citizens' jury) prevented the "capture" of the whole DPP and, in particular, of the stakeholder dialogue.

The objective and subjective evaluations also signal that both the potential benefits of the DPP were present: the DPP came to a final and unambiguous proposal (i.e. it was effective) which resulted in the generation of a new "hybrid" scheme (i.e. the DPP generated new

knowledge). This outcome was not at all granted: both stakeholders and citizens could refuse to participate, or defect later, thus preventing the generation of any positive result. On the contrary, stakeholders participated constructively in the meetings. All discussion between citizens and stakeholders did not feature opposition or prejudice; on the contrary, mutual listening and understanding were the prerequisite for shared outcomes.
In particular, participants avoided the mere mediation of their point of view and integrated all specific and general hints in a common position. For example, since the beginning of the preliminary analysis, parking rules appeared as the most contrasting issues: shopkeepers associations supported the goal of parking turn-over, whereas residents aimed at more reserved slots for themselves. But this contrast did not prevent to reach a shared parking scheme. Even the only case of dissent against the stakeholder dialogue (and the whole DPP) was expressed without disruptive effects. Also citizens fully adhered to the DPP: in particular, even in the Murat neighbourhood – where the sample covered a relevant share of the population –, the telephone poll was successful. Notwithstanding the initial distrust of many members of the citizens' jury, an almost unanimous "verdict" was issued. Such positive attitude resulted from design choice that constrained and directed deliberation (unanimous decisions and ranking of alternatives were both mandatory), and from the really high willingness of both stakeholders and citizens to participate, deliberate and reach a shared position.
The DPP only partially took advantage of such a positive attitude: the gradual emersion of a new "hybrid" scheme (i.e., a restricted traffic zone with free traffic corridors) is one relevant result of discussions between participants, allowing the integration of preferences for free traffic – expressed by both citizens and stakeholders – in a non-disruptive way.. Traffic schemes were defined at the beginning of the DPP as result of the preliminary phase, discussed and modified by stakeholders and then submitted to the evaluation of citizens. This resulted in two negative effects: the impossibility to integrate further alternatives emerged during the DPP (as the repeatedly referred "hybrid" scheme) and – maybe most important – the frustrations and irritation of participants to the citizens' jury when confronted with a closed framework. But this is a limitation that may be overcome: the citizens' jury should be activated at the beginning of the DPP in order to allow citizens too to participate in the design of the alternatives to be evaluated later in the DPP (Jones et al., 2009).

5. Conclusions

The ex-post evaluation of the DPP tested in Bari signals that the ex-ante design choices of the DPP proved valid.
The DPP was effective and learning was generated, but the knowledge generated by the DPP was only partially integrated into its final results. Both stakeholders and citizens expressed a preference for the restricted traffic schemes, though sharing the need to integrate some elements of the free circulation scheme. The generation of a "hybrid" scheme was not an internal result of the DPP, mostly because citizens did not participate to the preliminary design of the alternative schemes. .
Moreover, the "black box" and the "capture" effects did not manifest. These positive results mostly depended on the use of understandable techniques of deliberation and assessment,

and from the continuous reference to citizens' opinion. The latter was collected through the opinion poll and expressed directly in the "citizens' jury".
Only a "frustration" effect was detected by the ex-post evaluation of the DPP. This did not result from wrong ex-ante design choices, but from the limited willingness of the Municipality of Bari to be formally involved into the DPP.
Three general prescriptions for effective participation emerge from the test presented here: 1) potential benefits and shortcomings of participation should be explicitly considered when a DPP is designed; 2) both citizens and stakeholders should participate in the definition of the alternatives that they will assess later; 3) The involvement of the relevant Authority should be assured throughout the whole DPP.
Most likely the tested DPP was successful also because citizens and stakeholders of Bari were already accustomed to participatory and deliberative techniques. Where this is not the case, some specific actions should complement the implementation of a DPP: a) a preliminary information campaign, to ease conscious and balanced participation; b) training courses on the participatory tools that will be used; c) ensure that the DPP timing is long enough to allow the assimilation of intermediate results. Without these complementary actions, participation risks to reproduce the limitations it should help to overcome: the static representation of interests at stake, and the fruitless restatement of current knowledge.

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Appendix A

Table A.1. Main studies on the application of participation to urban mobility – Synthetic review

PAPER	AREA OF APPLICATION	ACTORS*	MAIN TECHNIQUES	AIM OF PARTICIPATION	MAIN OUTCOMES
Anson and Willis (1993)	Melbourne	STK	"Search conference"	Collect opinion	General and specific opinion was collected. A shared strategic vision was generated.
Baumann and White (2013)	Munich	STK	"Collaborative stakeholder dialogue"	Consensus - Generate new knowledge	New ideas and mutual understanding were generated.
Gil et al. (2011)	Ponta Delgada, Azores	STK, CITZ	Stakeholders: workshops, draft and final Sustainable Urban Mobility Plan-SUMP. Citizens: sample survey	Collect opinion	A SUMP was deliberated and later approved by the Municipality.
Ibeas et al. (2011)	Santander.	CITZ	"Mega focus groups" and Focus groups.	Collect opinion	Proposed solutions to main transport problems.
Lowry (2013)	Seattle	CITZ	Website, Online posts and post-ratings.	Generate new knowledge	A proposal of projects and taxes was created.
Machler and Golub (2013)	"Sky Harbor" neighborhood, Phoenix	STK	Meeting	Collect opinion	A set of indicators was generated.
Milakis and Athanasopoulos (2014)	Athens	CTZ	Participated multicriteria GIS analysis	Collect opinion – Generate new knowledge	The urban cycle network was designed.

Rye et al. (2008)	Edinburgh	CITZ	Survey, Interviews, Workshops	Collect opinion	Parking policy revised.
Stangl (2008)	Portland	CITZ	Workshops	Collect opinion	A final project list was generated.
Taylor and Tight (1997)	Brighton, Leicester, Sheffield, York	STK and CITZ	Surveys	Collect opinion – Consensus	Opinion on actual traffic schemes were collected.
Violato et al. (2012)	Campinas (Brazil)	STK	Multi-Criteria Decision Aid	Collect opinion - Generate new knowledge	A ranking of alternative interventions was generated.

* STK=Stakeholders; CITZ=Citizens

Appendix B – Methodological details on tools used in the DPP

Preliminary analysis
In fall 2011, we analysed Bari and Murat urban mobility condition, focusing on current transport performances, public debates and future plans and policies (see paragraph 2 for main findings). In particular we performed secondary data analysis and in depth one hour face-to-face interviews with 10 local experts, representing different categories such as institutions, NGOs, transport experts and cultural experts. Interviews followed a semi-structured scheme, in which local experts were asked to identify the most relevant current issues and dynamics of the local urban mobility situation and discussion. This phase led to the definition of the Murat as an interesting pilot site, after a further confront with the Municipality. Therefore a preliminary version of the strategic framework (strategic goals + alternative traffic and parking schemes) for the Murat has been adopted. This represented the main deliverable of this phase.

Stakeholder dialogue
The "stakeholder dialogue" technique is based on a facilitated discussion in which stakeholders perform a simplified multi-criteria analysis articulated as follows:
- First stakeholder meeting (April 2012). A facilitated discussion between 17 participants – representing 15 stakeholders – took place with the aim of updating and approving the preliminary version of the strategic framework. The discussion was articulated into five plenary sessions: the first one to overall discuss all strategic goals, and eventually merging, modifying or deleting existing goals as well as adding new ones; the other four sessions for the eventual amendment of each proposed goal.
- E-survey (may 2012). This had the aim of weighting strategic goals. Two stakeholders did not follow up after the 1st meeting and a new one has been added. The questionnaire asked each stakeholder to evaluate separately the four strategic goals by assigning a score from 1 (lowest relevance) to 100 (highest relevance). 14 stakeholders responded to the e-mail questionnaire and their scores were averaged to generate collective weights.
- Second stakeholder meeting (June 2012). This had the aim of providing the evaluation and ranking of alternative schemes. 14 stakeholders participated. Participants were informed about the results of the opinion poll with the explicit purpose of influencing their evaluation of the alternative schemes. The whole meeting has been held in plenary, even when four sub-groups (one for each strategic goal) have been formed. The work of each sub-group has been articulated into three sessions: (1) individual assessment of the relevance of each scheme against one goal; (2) presentation and comparison of individual assessments on a whiteboard, followed by guided discussion to achieve a unanimous conclusion, especially for most divergent individual assessments; (3) if unanimity within each group was not achieved, the discussion involved stakeholders of all sub-groups. Such a sequence has been repeated for each of the four sub-commissions (and goals). In session (2) Stakeholders could assign the following score: 0 (useless or negative), 1 (useful but not urgent), 2 (relevant), 4 (absolute priority). Stakeholders could assign the same score to different schemes, but they were asked to assign the score 4 to not more than one scheme.
Participants to the stakeholder dialogue have been selected to represent all relevant interest groups and their (possibly diverging) views (residents in the Murat vs. non-residents;

shopkeepers vs. residents in the Murat; public transport users vs. car users; vulnerable vs. other road users; environmentalist vs. business NGOs; etc.). Institutional bodies and NGOs (representing firms, workers, environmentalists, commuters, pedestrians, residents, etc.) were invited, with a specific focus on both the Murat and the transportation domain. The balance between interests and views has been pursued in the formation of the sub-groups of the second meeting too.

Opinion poll

In May 2012 a representative sample of 800 citizens (with an oversampling of 250 living in the Murat) participated to an opinion poll performed with a CATI (Computer-Assisted Telephone Interviewing) technique.

The sample was stratified by age, gender, residence and occupation.

Respondents separately evaluated the strategic goals using a 3 point scale (priority; relevant, but not a priority; useful, but not urgent) and ranked alternative schemes.

Citizens' jury

In the original design of the DPP, the citizens' jury was expected to witness the second stakeholder meeting, but this was not possible because the Municipality of Bari launched the public call with a considerable delay.

In September 2012, the jury met once to make the final decision on the selection of the scheme for the Murat. 15 members, out of a sample of 63 candidates responding to a public call made by the Municipality of Bari, were selected, using the same stratification criteria used for the opinion poll. Jury members received information about the previous phases of the DPP before and during the meeting.

Appendix C

Table C.1. Preliminary analysis - Strategic goals: first version

STRATEGIC GOALS	DESCRIPTION
Improving liveability	A better regulation of traffic and parking may reduce air and noise pollution as well as accidents. Moreover, pedestrian areas can be created that improve liveability and socialisation.
Improving accessibility	A better regulation of traffic and parking may improve accessibility thanks to lower congestion, increased public transport speed and better conditions for walking and cycling.
Promotion of cultural heritage	Traffic and parking generate negative impacts on the conservation of (and the accessibility to) cultural heritage. Moreover, without a specific regulation, touristic activities increase traffic pressures.
Touristic and commercial development	Negative impacts of traffic and parking on the cultural heritage may hamper commercial and touristic development. Therefore a better regulation of traffic and parking may improve commercial and touristic development.

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