Evaluation Tools to Support Decision-Making Process Related to European Corridors

6

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Abstract

In many European Countries any decision to draft a plan, to define a path of transport infrastructure or to choose the location of an "undesirable service" requires an imposing volume of discussions and negotiations. The most worrying aspect is that, even if the processes of governance are sufficiently open and transparent, they can run the serious risk of failure, as shown by recent experiences. In an attempt to reduce this risk, the decision process has to be seen as the result of a set of interactive actions occurring at different times in order to distinguish what is a priority and what may be negligible. The view of planning as a strategic choice process is a dynamic one, which implies to choose in a strategic manner rather than at strategic level. The chapter, after framing the main evaluation tools adopted in the field of territorial transformations connected to mayor transport infrastructure (as the Eurocorridor), provides some insights about the choice of the most suitable MCDA methodology. It introduces also the idea of MCDA in combination with visualisation tools to tackle these types of decision problems. Many and varied experiences of using multicriteria as tools to support decision aiding processes in a European project are illustrated in the last paragraph. It is shown how they have stimulated general reflections with the possibility of increasing the affordances, i.e. the possibilities for action the methods offer to those involved, varying the degree that was crucial to enable or constrain (model-supported) meaning negotiations and new knowledge creation.

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6.1 Introduction

In many European Countries any decision to draft a plan, to define a path of transport infrastructure or to choose the location of an "undesirable service" requires an imposing volume of discussions, negotiations and arrangements. At the same time, these may be characterized by the protest of local communities fighting for the right to choose what happens to the land they inhabit [25, 45], to the point that nowadays territorial conflicts have become more frequent, widespread and often even more disruptive than social conflicts.

As Bobbio [4] underlines, as soon as a problem arises, the first reaction from the local public administration is to open a discussion: public decisions are the result of a continuous negotiation process which concludes in reaching agreements. Escalating transaction costs represent the main obstacle to the territory's government. In a situation of high institutional and social fragmentation, the power of veto is in fact multiplied. It does not refer only to the traditionally strong interests, but also to the traditionally weak interests (as long as there is a concentration). Groups that are not involved in the decision process have the possibility to stop the choices made by others, or at least to delay them.

The most worrying aspect is that, even if the processes of governance are sufficiently open and transparent, they can run the serious risk of failure, as shown by recent experiences of territorial transformations. For these reasons, is it possible to affirm that "decision is not an act but a process" [48] characterized by continuous learning. The decision process has to be seen as the result of a set of interactive actions occurring at different times in order to distinguish what is a priority and what may be negligible. The view of planning as a strategic choice process is a dynamic one, which implies to choose in a strategic manner rather than at strategic level. The concept of strategic choice is related to the connectedness of one decision to another in a continuing dilemma of balancing urgency against uncertainty in decision-making over time [18]. It is in this theatre of complex interactions that it has been generally agreed that Multiple Criteria Decision Analyses (MCDA) can provide a very useful support. Belton and Stewart [3] define multi-criteria decision analysis (MCDA) as ''an umbrella term to describe a collection of formal approaches which seek to take explicit account of multiple criteria in helping individuals or groups explore decisions that matter''. Assuming that the MCDA could really contribute to the decision processes which refer to the transport infrastructure, the chapter provides some first indications. It aims to suggest "when" and "how" MCDA could be applied. Significant insights are shown throughout the direct experiences in the CODE24 project, and it will be shown that these experiences are generalizable.

The chapters are structured as follows. After the introduction Chap. 2 highlights the current phenomena of the territorial conflicts with particular reference to the transport infrastructure. Chapter 3 frames the main evaluation tools adopted in this specific field and provides some insights about the choice of the most suitable MCDA methodology (the illustration of a comprehensive list of all the MCDA is

therefore beyond the scope of this chapter; though some specific references are given). Chapter 4 analyzes the experiences of decision support referring to territorial and transport problems along the corridor Genoa-Rotterdam, developed in the Code24 framework, where some general reflections are provided. The conclusion shows possible development in the field research.

6.2 Territorial Conflicts Concerning Big Transport Infrastructures

In recent years, several trends affecting the nature of the policy-making process can be observed [44]:

1. An increasing demand for participation coming from the citizens;
2. An increasing mistrust between citizens, policy makers and "experts";
3. A growing social fragmentation;
4. A rising scepticism towards science;
5. A rapid growth in the amount of information available often provided without assessing reliability.

The result of such trends is an increase in the demand for accountability and legitimation, for both the process and its outcomes.

The decision-making processes in the field of territorial transformations are forming into specific characteristics [11]. The first of such characteristics is the increase in complexity, with an expansion of decisional network both, at geographical scales and at the level of relationship between public and private actors. In this sense, new types of actors come into the decision-making arena, alongside traditional ones. The result is a pluralisation of points of view within the processes, with a progressive separation between the ways in which public decisions are taken and what is required by the constitutional laws. The second distinctive characteristic concerns the increase in uncertainty and, in particular, the uncertainty about the outcomes of the decisions [18, 34]. Finally, there is an increase in conflicts among social groups, political actors, citizens and public authorities.

Since the territorial conflicts have become so important, it is significant to analyse why they have increased in the last decades and what is at stake. Bobbio [5] gives six types of interpretations to these questions. The territorial conflicts are seen, from time to time: (a) as the expression of particularistic and egoistic points of view that prevent the fulfilment of the general interest; (b) as the pressure of vested interests that exploit the fear of the population for other purposes; (c) as the consequence of the imbalance between concentrated costs and distributed benefits; (d) as a reaction to risks that are deemed unacceptable; (e) as the resistance of the places against the flows that invade or cross them; (f) as a demand for a different model of development.

In the specific context of the location and construction of big transport infrastructures, like the Eurocorridor, particular interest and focus has been given to points (c), (d) and (e); as described and illustrated by Bobbio [5].

The conflict can be seen as the result of an effective and predictable physiological imbalance between the costs and benefits of the proposed settlement. If the benefits are widespread and the costs are concentrated on a small community that is forced to bear the costs of an intervention that benefits others, it is quite natural that conflict arises. The approach to resolve the conflict lies in the negotiation: the proponents and communities involved negotiate the mitigation and compensation necessary to make the project acceptable. This strategy has the advantage of taking the arguments of opponents seriously, but is met with some difficulties. The promoters are often willing to offer compensation, but they are less willing to revise their plans and this attitude creates the unpleasant suspicion that they want to "buy" the health and safety of said community. In addition, local communities are composite entities and it is not easy to find the right person with whom to negotiate.

Another interpretation is that territorial conflicts are the direct consequence of new fears stimulated by technological development. The object of the dispute is, according to this narrative, the nature of the risks associated with a settlement, while the solution of the conflict would be the elimination of these risks or, at least, the definition of which risks are of minor importance or unlikely and therefore become acceptable.

If governments do not consider it necessary to inform the public and involve them in the political procedure, citizens can now appeal against these decisions in order to feel part of the process. In the risk assessment there are important psychological aspects that come into play: the feeling of being consulted, participation in decision processes and the impression of having the power to change things [32]. This may contribute to the understanding of individuals' perception of risk. This contention is difficult to solve. Ordinary citizens have a perception of risk differing greatly to that of specialists. They most fear the risks that are imposed on them rather than those they have voluntarily chosen themselves. Risks that are poorly understood, which are highly unlikely but catastrophic, are also reasons to cause fear. However the risks that are less damaging but more likely are of little concern. They also have risks in mind that specialists tend not to recognize: the depreciation of property, the consequences for the local economy and quality of life. Supporters of the interventions try to show—with standard arguments based on the calculation of probabilities—that the actual risk is different from what is feared and accuse their opponents of cultivating unscientific and irrational fears. But the specialists are unlikely to breach the concerns of the counterparty because such reassuring predictions have often proved unfounded in the past and because the risks feared by those who protest are different in nature than those of the specialists. It should be noted that the fears—even if unfounded—generate very concrete consequences, i.e. panic flooding the stock market or, for Corridor 24, the fall in real estate values in risk-prone areas, if the noise pollution of high-speed trains is fully mitigated, there is still a concern that an increase in train frequency or a development in technology can alter this situation making an area unattractive to purchase a home in the surrounding area.

As for the last interpretation, in the specific context of the construction of a transport infrastructure, the territorial conflicts can be seen as the resistance of the territories against the flows that invade or cross them [5, 46]. Globalization has made every border permeable, multiplying the flow of people and goods and increasing the susceptibility of those who are exposed to the currents of these crossings. The conflict between flows (in constant motion) and places (static) is one of the dominant traits of our time [10]. Not all flows are unwelcome. The regions/cities are competing to attract beneficial flows (investment, universities, tourists, etc.); and at the same time, try to drive away unpleasant flows (poor foreigners, waste treatment plants, power plants, etc.). The territorial conflicts are the manifestation of this competition. Beyond the actual dangers that the flows are likely to generate, receiving an unpleasant flow could lead to a derating of local territories. The object of the dispute, according to this interpretation, is sovereignty: global versus local sovereignty. The territorial protests, when they manage to hold up over time, become identity movements. The identities appear as non-negotiable values [5].

To summarise, one can say that in a transport planning context unstructured problems need to be addressed. These problems are characterised by the existence of [35]: (1) multiple actors; (2) multiple perspectives; (3) incommensurable and/or conflicting interests; (4) key uncertainties.

For all of these reasons, the need for decision support tools that are able to consider different aspects of transport planning is becoming increasingly more evident, overcoming the logic of simply applying the cost-benefit analysis, which has been until recently, almost the unique assessment tool in the field of transport [29].

6.3 Evaluation Methods for Transport Policies and Projects

A territorial transformation could be seen as a search to balance needs, institutional and financial constrains and market responses, within a perspective of sustainability.

With this idea, evaluation tools seem to be essential in order to control the complexity of the system and to support the governance of the transformation. During recent years, the evaluation approaches tried to consider the progressive complexity of urban and territorial transformations moving from an approach mainly based on the analysis of the urban/territorial factors and the real estate value, to a more integrate approach, in which not only the spatial and the financial aspects of the project are considered, but also the social implications and the environmental effects. Facing the new trends in the context of public participation at a European level, it is necessary to be more inclusive in the evaluation process, considering the use of specific tools enabling the involvement of the population in the decision process and to take the different opinions into account.

A fundamental aspect is that the planning context is usually very dynamic: the political relevance of items, alternatives or impacts may exhibit sudden change, hence it is important to conceive evaluation as a continuous activity that permanently takes place during the planning process. "It is noteworthy that evaluation processes often have a cyclic nature. By "cyclic nature" it is meant the possible adaptation of elements of the evaluation due to continuous consultations between the various parties involved in the planning process at hand. Such a learning process is a necessary condition to bridge the gap between technicians, researchers and planners" [27].

Evaluation takes place in all phases of decision making. The models facilitate dialogue [35, 47]. Lots of techniques and tools are available, depending on the phase in which the evaluation takes place (before, during or after the construction of the project). In the *ex ante* phase, the evaluation tools are necessary to support the formulation of the project, providing information both on the strategies (the objectives that the project is likely to pursue) and the visions (the actions that the project will implement in order to reach the objectives). The *in itinere* phase is mostly related to control whether the project meets the initial objectives, by emphasising the unexpected effects. Whereas in the *ex post* phase the evaluation process can help to make a final balance of the experience and to inform the local public administration and the population about the final results that the project attained.

Concerning the evaluation tools which can be used to measure the impact of transport policies and projects, in the *ex ante* phase monetary and non-monetary evaluations are used. A monetary evaluation is characterized by an attempt to measure all effects in monetary units, whereas a non-monetary evaluation utilizes a wide variety of measurement units. In particular four types of evaluation analysis are used in this context : the Cost-Benefits Analysis (CBA), the Cost-Effectiveness Analysis (CEA), the Discounted Cash Flows (DCF) and the MCDA (Table 6.1).

This chapter focuses on MCDA, for the following reasons:

- It takes all applicable units of measure into consideration. Therefore, it is possible to view all of the fundamental aspects of the operations and not just the monetary units (such as intervention costs or social opposition costs that bar the impact of noise pollution in the eventuality of developing new forms of urban settlement).
- It is possible to realise a project of such scale as the Eurocorridor. During the decision-making process of said project it is likely that at a certain moment the very purpose of the intervention is questioned. Consequently, MDCA is the ideal tool to manage this delicate stage.
- Often there is partial or missing information in the *ex ante* stage of an intervention of this scale and nature. Tools such as MCDA develop reasoning and interesting comparisons at macro-scenario level.
- The fact that the instruments are participatory in nature, which has been essential in building consensus.
- The ability of applying multicriteria techniques to actors at hand during the realisation processes of transport infrastructure on such a vast scale is very rare.

Table 6.1 Main features of appraisal tools measuring the impact of transport policies and projects

	CBA	CEA	DCF	MCDA
Description	Analysis of changes in social welfare over time associated with the intervention. It seeks to quantify all of the costs and benefits of a proposal in monetary terms, including items for which the market does not provide a satisfactory measure of economic value	Analysis that compares the costs of alternative ways of producing the same or similar outputs. It is generally used to assess the efficiency of certain technologies, programmes or policies in order to compare a number of alternatives	A valuation method used to estimate the attractiveness of an investment opportunity. It uses future free cash flow projections and discounts them to arrive at a present value	Analysis of the full range of aspects that are related to the project. It permits to integrate qualitative and quantitative information into a single assessment or output
Application	Predominantly road project evaluation but has been applied to demand management and technology policy options	Predominantly technology and alternative fuel policy options	Predominantly project-level	Predominantly project-level at a very early stage
Trend in use	Widely used, firmly embedded in project appraisal	Increasingly used as part of marginal abatement cost (MAC) curves but not widely formally integrated into policy appraisal	Widely used for both, private and increasingly public investment	Not widely used in practice but qualitative elements of MCDA increasingly used in project appraisal and for comparing scenario alternatives
Input	Monetary measure of changes in well-being, social discount rate	Costs	Costs and revenues, discount rate	Measurement of positive and negative impacts, utility functions, weights, etc
Output	Social rating convenience (Net Present Value—NPV, Internal Rate Return—IRR)	Cost—effectiveness ratio	Private rating convenience (NPV, IRR, Pay Back Period—PBP)	Decision ranking, rules, indicators, etc

(continued)

Table 6.1 (continued)

	CBA	CEA	DCF	MCDA
Positive impact considered	Predominantly travel time savings and reduction in accidents and fatalities	Greenhouse gas—GHG emissions reduction	Predomintaly tolls or pre-sale contracts transportation services	Potentially all benefits
Stakeholder participation	Possible but not required	Possible but not required	Possible but not required	Formal part of process
Strengths	The result provided by the evaluation is easy to communicate—single value	The result provided by the evaluation is easy to communicate—single value	The result provided by the evaluation is easy to communicate—single value	The evaluations well represent the public decision making (conflicts' analysis, technical and political judgments etc.). The communicability depends on the technique used
Weaknesses	The monetization of externalities may be inaccurate or unacceptable	The estimation of all costs could be difficult	The evaluation ignore the public assessment (externalities)	The procedures have some uncertain results that are subject to high variation over time. High level of subjectivity

Source Elaboration from Browne and Ryan [8]

As stated by Figueira et al. [13, p. 25], "MCDA is not just a collection of theories, methodologies, and techniques, but a specific perspective to deal with decision problems. Losing this perspective, even the most rigorous theoretical developments and applications of the most refined methodologies are at risk of being meaningless, because they miss an adequate consideration of the aims and of the role of MCDA".

There is a growing number of positive examples of using MCDA to support participatory and collaborative processes [14, 15, 20, 21, 26]. MCDA allow several criteria to be taken into account simultaneously in a complex situation and they are designed to help the Decision Makers (DMs) to integrate the different options into a prospective or retrospective framework [13, 36]. MCDA is a versatile and flexible approach to participatory processes allowing the stakeholders to engage and incorporate their values and knowledge into different phases of the planning process.

There are also some challenges and pitfalls in the use of MCDA, which may affect the quality and legitimacy of the outcome. As underlined by Marttunen et al. [26], these are often related to how well MCDA suits or is tailored to the question at hand and how professionally it is applied. Failure to identify the real nature of decision-making may place the resulting analysis at risk and greatly diminish the relevance of the results [28, 40]. At the same time, difficulties in reading output data, especially if these are numerical lists or matrixes, as well as the variety of the DMs' backgrounds can limit the process of data sharing and knowledge.

6.4 Choosing a Multicriteria Method

An illustrative and comprehensive list of the whole MCDA is beyond the scope of this chapter (please refer to [7, 13]), but what we would like to do is to provide some reflections that could help an analyst in choosing a method to be used in a decision context similar to the one here analysed.

It is possible to provide aid to someone who is struggling in the decision process by asking, said person as well as the analyst, a number of crucial questions [38].

Roy and Słowinski [39] provided a very interesting list of questions which, in their view, should be answered by an analyst before choosing the MCDA in any decision context. They suggest that the first essential question the analyst should start with reflecting on the best or even the only way of answering is the following: "Taking into account the context of the decision process, what type(s) of results is the method expected to bring, so as to allow elaboration of relevant answers to questions asked by the decision maker?". This question is fundamental because, depending on the decision context, the same type of results may not bring useful information able to guide the decision aiding process in the right way. The authors add, to the central one, five other key questions to choose the right method:

- Do the original performance scales have all the required properties for a rightful application of the considered method.
- Is it simple or hard (even impossible) to get preference information that the method requires.
- Should the part of imprecision, uncertainty or indetermination in the definition of performances be taken into account, and if so, in what way.
- Is the compensation of bad performances on some criteria by good ones on other criteria acceptable.
- Is it necessary to take into account some forms of interaction among criteria.

These questions are useful not only in a decision making process, but also in a decision aiding one. The decision making processes are the most widely used in order to conduct the Decision Maker (DM) to take a decision. In similar situations the DM has the necessary information to be able to conclude the process of finding a more satisfactory solution [38]. However, the decision processes are not always designed to come to a final decision, but could be concluded in the understanding of the problem, the description of the decision situation, the justification of the choices, discussion, persuasion etc. [37]. In such cases a decision aiding process is necessary. The presence of an analyst and the use of a decision support tool is essential in order to overcome the difficulties encountered during the decision process. In a decision aiding process there is no a real decision maker; the one who is asking for help (individual, organization, administration etc.) might not necessarily be interested in coming to a conclusion. Instead, he may be asking for a help because the decision situation is so complex, characterized by multiple stakeholders and decision variables, that requires an elaborate process of understanding before making a final decision [7].

It is important to add another concept to this framework, in order to comprehend how to develop a successful negotiation in decision making and decision aiding processes; the concept of "affordances". People do not interact with an object prior to or without perceiving what the object is good for: the perception of an object's utility could be called "affordance"[19]. Affordances are unique to the particular ways in which an actor, or a set of actors, perceives and uses the object. In the relational view, affordances of an artifact can change across different contexts even though its materiality does not [24, 43]. Norman [30] defines an affordance as something of both actual and perceived properties. When actual and perceived properties are combined, an affordance emerges as a relationship that holds between the object and the individual that is acting on the object.

Franco [17] explored how the models developed had the capacity to invoke different perspectives, knowledge and interests that were 'at stake' [9], and those involved were able to use that capacity to openly discuss and negotiate new meanings that led to new knowledge and significant changes within the partnership. He identified five model affordances:

- "*Tangibility*: the ability of a model to make its content visible and concrete. This affordance makes domain-relevant knowledge available and tangible, and a source of group discussion and negotiation.
- *Associability*: the ability of a model to relate its contents based on shared attributes. This affordance enables those involved to identify knowledge differences and dependencies.
- *Mutability*: the ability of a model to modify its contents on the spot. This affordance allows evolving knowledge-related discussions and negotiations to be reflected in the model incrementally.
- *Traceability*: the ability of a model to relate its contents temporally and structurally. This affordance offers opportunities for surveying and assembling knowledge-related discussions and negotiations.
- *Analysability*: the ability of a model to transform inputs into outputs. This affordance enables experimenting with different knowledge-related inputs, and calculating their impact".

The affordances outlined above seem very promising also in the context of transport planning [22], in particular when the use of multicriteria methods is associated to visualisations, as illustrated in the next paragraph.

6.4.1 The Code24 Experience

As already stated, construction of major transport infrastructures is currently widely debated in Europe. Top down approach to transport infrastructure planning is no longer viable and new approaches are needed: (1) negotiation rather than coercion, (2) agreement building rather than imposition. Within this perspective, many experiences of decision aiding processes have been experienced in the

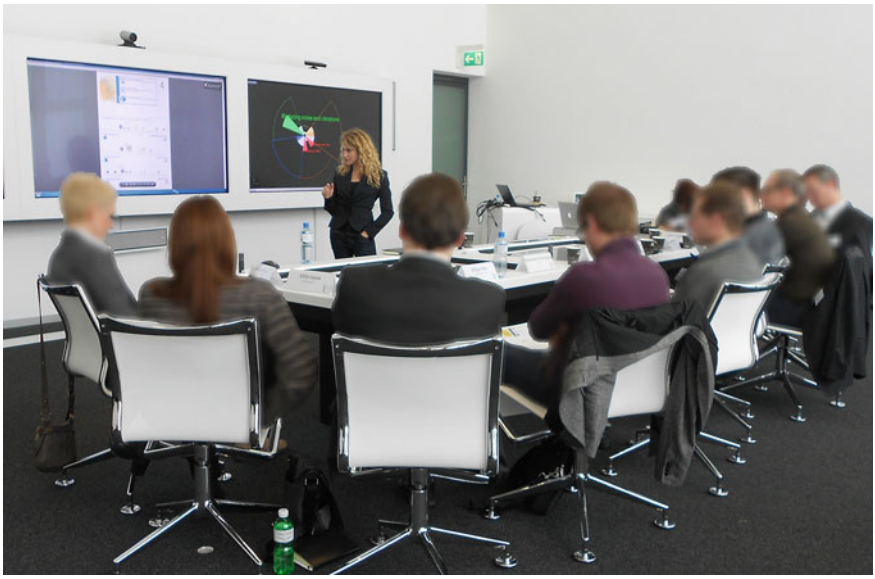

Fig. 6.1 Final workshop about the whole Corridor Genoa Rotterdam, ANP application (ETH Zurich, February 2014)

Fig. 6.2 Final workshop about the whole Corridor Genoa Rotterdam, collaborative assessment (ETH Zurich, February 2014)

Code24 framework, with different evaluation characteristics and different level of participation (Figs. 6.1 and 6.2).

It has been a challenging project, whereby it was necessary to find evaluation tools adaptable to problems relating to different geographical scales (from urban

until the European Union); it needed to be understandable and potentially "acceptable" by individuals with very diverse academic backgrounds, goals and cultures (as they came from different countries); be compatible with dynamic visualization tools; as well as to encourage the highest level of participation.

The Analytic Network Process (ANP [42]) was chosen for the following reasons.

- First, the type of results the ANP methodology assigned are numerical values to each potential action. This is particularly significant, because there is no vision without numbers. Even if the discussion about the Genoa-Rotterdam Corridor has been at "macro" levels on different occasions, it was important to give a concrete idea of feasibility of the proposed and compared solutions. The ANP, like other methods, offers the ranking of alternatives as a final result and, for this reason, provides a readable and immediately understandable result. Moreover the ANP methodology is able to produce a list of best actions to be further analysed by the people involved [6].
- Second, the original performance scale of the ANP method, the Saaty's fundamental scale of absolute numbers, has all the properties required for a correct application. Hence there is no need to transform or codify the original scale, which could cause the rise of arbitrary transformation that could, in turn, affect the process as a whole. It does not handle missing data but often it is possible "to circumvent" the problem, resetting the structure of the decision model.
- Third, the ANP may contribute to the construction and review of alternatives [1] as experienced during the project.
- Fourth, it is based on the assumption of the decomposition of a complex problem into simpler elements, systematizing the relationship among the nodes. Similarly, it uses the principle of pairwise comparison to simulate the process of the human mind [41, 42]. It helps to take into account the views of different actors, even with heterogeneous languages, allowing to develop participation, due to the focus groups where different actors and decision makers can deal directly with each other.
- Fifth, it is possible to combine the ANP with a new visualization tool [31], as illustrated in Chap. 11 (Masala and Pensa).
- Finally, the way in which the ANP is applied really coincides the iterative and interactive role which is increasingly required in an evaluation process [2, 23].

As for the applications of the method, please refer directly to the case studies (Chaps. 12, and 13, [2]).

The following Table 6.2 provides an overview and comparison of the attended workshops, with a synthetic description of the preparations phase (for more details please see Chap. 13 the case study of the entire corridor), with their main characteristics. On a side, note the workshops also increased and improved the researchers' learning processes.

Similar to research of Franco [16, 17], in these cases the affordances indicated on each application were perceived differently by the people involved. Generally, these affordances enabled a collaborative mode of interaction to be adopted, in

Table 6.2 Overview of the evaluations workshops experienced in the project CODE24

Time	Activity	ANP structure	Number of questions	Weight elicitation	Preparing the focus group	Stakelhoders	Affordances
February 2011	Ranking of the possible effects of a delay in the construction of the Corridor 24 in Italy	Simple network	31	Arithmetic Average	Information material	8 (experts internal to the CODE24 project, all Italian)	Tangibility
July 2011	Evaluation of three transport scenarios for the area of Bellinzona (CH)	BOCR model	49	Arithmetic Average	Information material	12 (mostly experts internal to the CODE24 project. Italian, German and Swiss stakeholders)	Tangibility
December 2011	Finding the best development strategy for the area of Frankfurt/ Mannheim (Germany)—Test Workshop	BOCR network	100	"Majority method"	Information material	16 (partly the experts; small number of real actors—representatives of the Public Administrations—and some observers. Italian, German, Dutch and Swiss stakeholders)	Tangibility Editability Associability
March 2012	Finding the best development strategy for the area of Frankfurt/ Mannheim (Germany)—Workshop	BC network	35	The questionnaire form was partly filled in under the guidance of MCDA expert in the workshop and partly at home. The elicitation of the weight was done by the "Majority method".	Information material in English and German; Online ANP questionnaires in English and German, selection of 10 key questions	10 (experts internal and external to the project Code24, real DMs and citizen representatives. Italian, German, Dutch and Swiss stakeholders)	Tangibility Editability Associability Mutability Traceability (partially)

(continued)

Table 6.2 (continued)

Time	Activity	ANP structure	Number of questions	Weight elicitation	Preparing the focus group	Stakelhoders	Affordances
September 2012	Finding the best development strategy for the Corridor 24—Test Workshop	Complex strategic network—BC network	100	"Majority method"	Information material in English; Online ANP questionnaires in English, selection of 32 key questions	9 (experts internal to the project Code24, real DMs. Italian, German, Dutch, French and Swiss stakeholders)	Tangibility Editability Mutability Traceability (partially)
February 2013	Finding the best development strategy for the Corridor 24 Workshop	Simple network	19	"Majority method"	Information material in English; Online ANP questionnaires in English	10 (experts internal and external to the project Code24, real DMs. Italian, German, Dutch, French and Swiss stakeholders)	Tangibility Editability Associability Mutability Analysibility Traceability (partially)

order to design much wider perspectives and different possibilities to transform the analysed territories.

At the end of this long process of experimentation of evaluation workshops on the theme of the euro-corridors, the following conclusions have been reached:

- In order to obtain the trust and effective involvement of the participants it was crucial to involve the stakeholders in the definition/redefinition of the objective of the decision-making process, to design of the alternative scenarios and to identify of clusters and nodes. The process was important because "there is usually no shared understanding of terms like mission, vision, goal, objective" [33] in [12].
- The use of real-time excel sheets (for the aggregation of the weights assigned during the discussion) and dynamic maps (to represent the distribution of the expected effects in the area) has increased exponentially, respectively, the tangibility and traceability, as well as the mutability for the presence of both the tools.
- The analysability was increased by simplifying the adopted ANP network and by reducing the level of abstractness of the visualizations.
- By sending the ANP questionnaire in advance it allowed the participants to compile it prior to the workshop which has ensured a greater associability to the project.

6.5 Conclusions

The purpose of this chapter has been to set out the background to territorial conflict with particular reference to the realisation of mayor transport infrastructure, and to introduce the idea of MCDA in combination with visualisation tools to tackle these types of decision problems.

Drawing on recent developments in the area of MCDA, it has been discussed the issue that the valuation methods to support decision-making problems are numerous. The choice of one rather than another depends not only on the type of expected results and on a series of elements such as the preference information, the management of uncertainty, the desire to use a compensatory method and the interaction between criteria, but also depends on their affordances, i.e. the possibilities for action they offer to those involved. The many and varied experiences of using multicriteria as tools to support decision aiding processes in a European project have stimulated general reflections with the possibility of increasing the affordances, varying the degree that was crucial to enable or constrain (model-supported) meaning negotiations and new knowledge creation [17].

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