

# DECYDE: A PARTICIPATORY METHOD FOR “MEASURING” SUSTAINABILITY THROUGH A FRIENDLY, FLEXIBLE AND ADJUSTABLE [SELF-ASSESSMENT?] TOOL

Xenia I. Loizidou<sup>1\*</sup> and Michael I. Loizides<sup>2</sup>

<sup>1,2</sup> ISOTECH Ltd Research and Consultancy  
P.O. Box 14161, 2154 Nicosia, Cyprus, [www.isotech.com.cy](http://www.isotech.com.cy)  
E-mail: [xenia@isotech.com.cy](mailto:xenia@isotech.com.cy)

## The concept:

DeCyDe is a practical method that can be implemented to give a “number” to a problem or an issue, i.e. to have a measure, to understand the size or the scale of a state/condition, especially in cases where everything is subjective or difficult to quantify. The DeCyDe approach is in line with the trend of public policies to move from a purely conceptual and theoretical view to a more pragmatic approach, based on empirical evidence. When talking about decision support, the important questions are “who are the Decision Makers” and “what are their competences”. If a sophisticated and complex to users decision support system, aims to support decision makers who do not have high academic competences, then it should be expected that the system will not be used. This is the most common problem of the Decision Support Systems: in their majority they are complicated and difficult to use, resulting in decision makers who increasingly rely on their intuition and judgment and even interests.

The above issues were the challenges which led to the development of DeCyDe, a method that integrates logical processes, established scientific knowledge and real local data, together with local knowledge and experience and a high degree of participation. More than 10 years of implementing and improving simple decision support methods in real cases, led to the development of DeCyDe, a clear method and a friendly decision support tool, flexible to accommodate different kinds of decision problems when multiple decision alternatives exist. It offers a framework that supports the decision makers and the stakeholders to understand and justify the main issues that are involved in the process of decision and the trade-offs between different decision alternatives. At the same time it gives them the chance to a real participation, i.e. to incorporate their views, evaluations and perspectives in the process.

DeCyDe incorporates principles from multi-criteria analysis, from public policies approaches, from vocational training structures (eg LitusGo structure) and even basic logic principles from Fuzzy theory (the theory of graded concepts, where everything is a matter of degree). It is a spreadsheet oriented decision support method including a flexible and easy to use tool.

## The structure of the DeCyDe method:

DeCyDe is structured in three preparatory, self-contained and interrelated steps and in a final stage where the actual decision support work is done. The preparatory steps are self-contained because they can be used *per se*, each step giving specific results. They are interrelated since when put together they lead to the final stage, where the decision is supported, based on facts and data not to perception and intuition. However, the first step, the data base, is necessary for the consistent development of the other steps:

### *Step1: The Data Base*

Usually a major problem in decision making is the lack of consistent data or the low quality of existing data. The Data Base of DeCyDe is built specifically and dedicated for every case that the method is implemented, taking into account the above mentioned data problems. This step forms actually the baseline work, the product of the identification of the problem and the gap analysis of the needs and the parameters that are involved in the specific decision process. The Data Base provides the set of “core” data that are needed in order to guarantee the unbiased character of the results of the decision process. It is very usual that the decision makers believe something which is not the reality but rather their perception. This set of core data is organized in a way that supports the decision makers to picture the real image of the existing situation and understand the problem through numbers.

### *Step 2: The setting of of criteria/ parameters*

This is the part of the method where each case under examination, is structured and modeled. Step 2 of DeCyDe consists of two parts:

**Part 1:** Addressing the multiple dimensions and/or perspectives of each case. It is important to define the key set of criteria/parameters that are involved in the decision making process. This is achieved through a participatory process, where the experts/consultants suggest a rather large set of parameters/criteria which is the result of their research. The decision makers and stakeholder are asked to go through them during dedicated structured meetings/ workshops, discuss and decide on the “core” set that is going to be implemented in order to support their decision. This is a highly participatory process that incorporates a simple approach, i.e. the availability of data, the definition of the problem and the perception of the decision makers and the stakeholders. It is important to have a robust baseline study, a good set of data (the result of step 1) and a trained facilitator/expert who is not imposing decisions, but supports the process and has a good knowledge of the examined case, of the data and of local/ case specific characteristics. It has to be clear and provide the decision actors with the reasoning that the aim is to solve the problem, to get a concrete result to support the decision to be made than to attempt to model a system mathematically.

**Part 2:** The “Scoring” of the criteria/parameters. The scoring of each criterion/parameter is achieved through given ranges of values. The “scoring through ranges” approach converts state-of-the-coast indicators into sustainability indicators. This is because the score attributed immediately gives a reference value and relevance instead of just a snapshot single figure which stands for nothing but itself.

The ranges of values are mainly defined, based on European Union Directives and when these do not cover the specific parameters, limits provided by International Bodies are used. Local/ National regulations are also considered. The approach to score through ranges instead of using precise values, provides the method with flexibility: even data which could not be specifically identified and have a level of being imprecise or give an approximation, can be used if identified within a range, and thus they are descriptive for the method and can be taken into consideration and contribute with a certain score. It is usual to skip parameters/criteria when their precise value cannot be reached. With this approach of scoring through ranges, all key parameters/criteria are incorporated in the decision process.

### *Step 3: The Weighting*

This is the final step of DeCyDe. The criteria are organized in matrices, based on Saaty’s concept of comparing couples. The number of matrices, i.e. the number of levels that will be incorporated in the decision support method is defined in step 2, when the key parameters/ criteria are decided. Well structured workshops are organized, with the

participation of the decision makers and the stakeholders that have already participated in step 2. The facilitator explains the process on how to compare the importance level between couples of parameters/criteria. The matrices are presented in a spreadsheet form and they need to be ready and programmed in order to have direct results the moment the weight/ importance between a couple of parameters/criteria is agreed among the participants. Through this step a high level of participation is achieved. By increasing the level of actual participation, and by enhancing conversation among conflicting interests, DeCyDe achieves consensus building among the group of decision actors (decision makers and stakeholders) that are involved in the process. They get into a discussion that eventually leads them to a common perception or at least common understanding.

#### *Final stage:*

When all three steps are completed, the spreadsheet tool is ready to be operated further: the decision makers can predict how the existing situation can be changed if, for example, they want to change the score of one or more parameters/criteria. That means that they can easily check what will happen to the entire set of criteria/ parameters should they invest resources to support the change of score and thus the range, of that certain parameter. Or they can forecast what will happen if they change the importance among the different parameters/criteria, i.e. change their policy. Through this exercise, the decision makers can evaluate and assess a large range of concepts, of actions, of policies. They have a “number” that gives them their “score” each time they would take a decision, based on real data of the existing situation. They have the chance to anticipate the impacts of their decisions, identify the pros and cons of different options and discuss them among the entire group of decision actors: and eventually, they can reach an optimized decision. As mentioned before, since this decision is taken through a participatory process, with the consensus of the decision actors, they are all committed to support the implementation of their decision. This is one important issue: promoting the implementation of decisions through the consensus of decision actors.

#### **Case study: implementation of DeCyDe in SUSTAIN project**

DeCyDe was modified to accommodate the needs of the Interreg IVC project SUSTAIN. SUSTAIN aims, among others, to provide Local Coastal Authorities and Local Coastal Decision makers with a tool that can help them assess whether their decisions, policies and actions will lead to a sustainable future. In other words, the question was how to “measure” sustainability and how to “track” the changes, improvements or not, and give them a “number” which could be comparable in time.

The multi-functionality and complexity of coastal zones gives rise to several conflicting functions and much ambiguity in coastal zone management. The SUSTAIN group formulated/ modeled coastal zone systems through 42 parameters/ indicators: the SUSTAIN sustainability indicators. ISOTECH’s working group (the DeCyDe developers) took the SUSTAIN set of indicators and (a) drafted a list of data and their format/ units, that should be provided from each SUSTAIN partner in order to run DeCyDe in each partner’s area (b) gave ranges to each parameter/ indicator in order to proceed with the “scoring” (b) set up the decision support spreadsheet with the weighting matrices. The SUSTAIN partners have implemented the DeCyDe tool during the project. The complete structure of the DeCyDe method, as it was implemented in the SUSTAIN project, will be presented during the Littoral 2012 Conference.

#### **Conclusion**

DeCyDe is a method that aims to facilitate decision makers and decision actors in the decision process and at the same time sets their actual participation as a prerequisite for

the success of the method. It provides them with a friendly to use and rapid implementation tool, respecting thus their time limitations (which is one of the major problems of participation in decision support systems). DeCyDe was developed based on a wide range of concepts, techniques and principles, targeted towards a transparent and effective decision support method, which can provide the decision actors with a tool of high sensitivity and robustness in assessing different options and impacts of decisions. DeCyDe is characterized by flexibility and adaptivity: it is a multi - task/ multi-purpose/ multi-use decision support method.

## References

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