

## FORUM

### What are real-life applications of decision support?

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Recently our colleague Alexander Lotov submitted to the discussion list of the MCDM society the above question. In fact the question arose from the concern (rather common among the MCDM community) that there are few real life applications of our theories and

methods. Further on it is not clear what a real-life application means and how we consider that a real-life succeeded or not. At the time I have contributed a brief comment to the problem. I come back with pleasure on this issue trying to further explain my thoughts.

First of all I only partially agree with the concern about "few real-life applications of MCDA". There are few reports about real-life applications published in scientific journals and even less done by academic people, but multiple criteria decision support is practiced every day by a large number of companies and consulting agencies (more or less correctly and/or successfully). Such experiences almost never appear in scientific journals and this is quite natural. Practitioners do not need a scientific legitimization of their activity. Further on, the usual standards applied by scientific journals in order to accept a paper are difficult to apply at empirical considerations and in any case make difficult (to a practitioner) to write such a paper. Unless we motivate practitioners with arguments which are not only academic such a situation will not change.

The legitimate concern is whether the people which teach decision support and produce theory about it have real-life experiences of decision support! I do not claim that scientific legitimization of a theory lies only on empirical grounds, but I consider that empirical validation is an important dimension of any scientific theory. From that point of view the small number of real-life applications reported by academic people in the scientific literature can be considered a concern.

Remains open the question of what can be considered a real-life application. In fact several times, acting as a referee, I receive papers which claim to include real-life validation of the suggested theory, while in reality at the best it is just an empirical validation with data coming from reality.

To my point of view a real-life application is the one where it is possible to observe what I call a decision aiding process. That means that at least a client and an analyst are involved, the first expressing a "problem", the second trying to give him some advice. Other actors may be involved, each with different concerns and stakes in the process.

The above description can apply to cases where the client is a patient and the analyst is a psychologist or a physician, the client is anybody and the analyst is a lawyer. What distinguish and characterise our field is the use of formal methods, that is methods reducing ambiguity, typical of human communication. Under such a perspective the output of the decision aiding process is not the result of a method applied to a model, but the advice given to the client and further the use of such an advice done by the client. This is the reason for which is important, in order to speak about real-life applications, that it exists a client. I cannot see an operational validation of a theory without a client involved.

Can we speak about "successful" real life applications? This involves two dimensions. The first is client's satisfaction. Here we have to pay attention. Satisfaction does not mean that the method output or the analyst advice were accepted by the client. It can be the case (and I had such experiences) where the advice was more or less rejected, but where the process was satisfactory because enabled the client to understand better his problem. Therefore satisfaction refers to the decision aiding process and not to its result. The second dimension is correctness. In the sense that the advice has to be based on a sound basis and fulfill at least basic meaningfulness requirements. Not all methods and models apply to all cases.

The above description implies the existence of a, let's say, observable entity which is the couple client-analyst. Only a third observer can analyse critically the behaviour of such an entity. Unfortunately in our field we do not use what in other fields is called a supervisor, that is a independent observer of the decision aiding process. I think that we have a lot to learn by adopting such an approach.

Consider in fact the question about client's independence and capacity to be critic towards the analyst. In other terms: are we sure that we do not influence the client by just using a certain approach instead of another? And

how the client can be aware of such an influence? This is a key issue in analysing the experience of a real-life application of decision support, but almost never has been discussed.

Real-life applications of decision support have to be an essential component of the experience background of people doing research. However, I feel that we still do not have a common concept of what that does it mean and moreover on how such experience can be correctly used and validated. I hope my modest contribution will be useful in this direction.

The full documentation of the discussion is available at the following URL:

<http://www.ccas.ru/mmes/mmeda/real-life.htm>