

Comment on “The OR/MS Ecosystem: Strengths, Weaknesses, Opportunities and Threats” by ManMohan S. Sodhi and Christopher S. Tang

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I read with great pleasure the paper by Sodhi and Tang, an updated version of the discussion originated with Ackoff’s famous paper about the future of OR. There are only marginal points I would disagree and to most of the suggestions advanced by the authors I would subscribe with no hesitation.

That said, in order to contribute to the discussion I will add some further points to the SWOT analysis suggested by the authors and discuss some general issues I consider crucial for the future of our discipline.

1. Strengths

Besides being formal (using formal languages such as mathematics) OR/MS introduces some form of rationality in solving or aiding to solve problems. While the use of formal languages distinguishes our profession from people who practice “decision aiding” such as lawyers and psychotherapists it does not allow to characterise us with respect to other professions, namely computer scientists, who may typically approach a problem only from an algorithmic point of view (with no model of rationality within it). OR analysts are not just applied mathematicians, nor just sophisticated computer scientists. They are not psychotherapists either. They can claim (and they should do so) a specific profession based on formal approaches and rationality models which is unique.

2. Weakness

OR/MS is “inside” most of the most important technological achievements of our societies (from production management to telecommunications and from airlines to health care management). The fact that OR/MS tools are “inside” such a variety of application fields and most of the times “embedded” in software packages implies low visibility of its contribution. It is like algebra: everybody uses it, but nobody knows that does so. This is a major challenge for scientific societies such as IFORS, EURO and INFORMS: increase awareness of the large public that OR is “inside” their cel-phones, the water and energy distribution in their houses, the traffic lights, the train schedules etc...

3. Opportunities

Besides the ones mentioned by the authors I would add Public Policies Evaluation as a major area where OR/MS is increasingly asked to contribute. Environmental management, natural resources management, homeland security, regional planning, ex-post assessment of social policies are all examples where OR/MS can greatly contribute. Actually it is the case: the European Social Fund explicitly mention the use of OR methods in order to assess the use of this programme; NEPAD's (New Economic Partnership for African Development) official documents also demand for an increase in using OR methods.

4. What are we looking for?

At this stage I would like to raise some further questions (for which not always I have a sure reply).

1. *Who is our target?* A rough check of the "eco-system" dimension tells that we have around the world 35000 people who actually recognise themselves as Operational Researchers (this is the world membership of IFORS). If we consider that only 1 out of 10 is "conscious" of being an Operational Researchers then our ecosystem has a potential dimension of 350000 world-wide. This is a fraction of any engineering branch in any major Economic Area in the world which makes us automatically a "niche" community at least quantitatively. Now the question is: to whom we are talking? The 35K existing community, the 350K potential community or a 35M target who should be diverted to our discipline? If we remain within the boundaries of our community then we are talking to a "niche" and we have to organise ourselves under such a perspective. The "Branding OR" campaign of EURO was addressing this "potential OR" community which still needs to "emerge". But perhaps we have also to consider other options when we talk about the OR community. What does it mean addressing a 35M community and how these people can be attracted by OR/MS research, practice and education?

2. *Practitioners do not publish their work.* Why they should do so? Publishing a paper is a time consuming activity. Academics spend this time because their careers depend on that. Practitioners careers do not depend on their papers. Why they should waste their time to publish? Changing the format of OR/MS journals will not attract more submissions from practitioners unless we can imagine a rewarding policy for those who do so.

A professional magazine talking to the 350K community of OR people (most of them practicing OR) may be a solution. However, there is a major problem. For most of these people English is, at the best, their second or third language, at the worst, unknown. In any case most professional magazines become attractive when they are produced in the language of their readers. Since publishing such a magazine is extremely expensive we need to consider seriously whether we can afford that in one language, multi-lingual,

3. *For Educators.* What type of OR/MS do we want to teach our graduate and post-graduate students? Only a fraction of these are going to go for a PhD. The rest we can expect they will undertake an honourable career as OR/MS professional. Do we have professional training for these people? Do we have life-long training for these colleagues? Are we providing skills enabling these people to work as OR/MS analysts?

Under such a perspective I think we need to "professionalise" our profession. Today there are very few life-long training courses in OR/MS. We do not have assessment procedures: if you are not happy with your lawyer you can ask to assess the correctness of his/her advice; can we do the same if we are not happy with our OR/MS analyst advice? We do not have standard protocols for conducting and monitoring a decision aiding process. We do not have rules of "best practices". The fact that we introduce rationality in problem solving does not mean that we do so rationally ... Perhaps we should start taking care of that.

4. *For Practitioners.* What is exactly the service we “sell” to our clients? Solutions? Advice? Methods? Methodology? With Software on top of that? My personal idea is to focus on the concept of “methodology” (reasoning about methods; a combination of theory and best practices). We would like to allow our clients to understand the problem they are talking about, to shape the problem situation in a rigorous way and to get convinced (to feel owners) about a possible solution. But can we think ourselves as “decision support methodologists”? Can we accept that we do not “sell certainties”, but that we help to reduce the uncertainties without ever eliminating them? Are we ready to learn from our clients’ perspective?

After all if our clients were happy with how they solve their problems they will not ask an OR/MS analyst to help them. If there is a demand for decision support there is also a demand for changing how problems are handled (as far as that precise client is concerned). And here comes our methodology.

5. *For researchers.* Research in OR/MS is very sophisticated today and this is a sign of the vitality of our research community. However, my impression is that among the research subjects to address we are missing the problem of analysing the decision aiding process from our perspective. With the noticeable exception of work done mainly in UK on Problem Structuring (see [2] and the recent special issues of JORS [1,3]) there is very little attention paid in analysing what exactly are the activities of an OR/MS analyst and the interactions with his/her client. I think this is a subject to add to our research agenda: the establishment of an OR/MS “doctrine” (my modest contribution can be seen in [4,5]).

Concluding I would like to thank once again Sodhi and Tang for this thought provoking paper. Their “systemic” vision of our community opens the way for a nice discussion I hope will continue further on.

References

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- [5] A. Tsoukiàs. From decision theory to decision aiding methodology. *European Journal of Operational Research*, 187:138 – 161, 2008.