Opinion Makers Section

Une lecture de ce qu'est ou pourrait être l'aide à la décision à partir des travaux de Mary P. Follett (1868-1933)
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1. Revenir sur les postures fondamentales de l'aide à la décision

Si l'aide à la décision est une activité qui se nourrit de beaucoup de travaux techniques qui visent à accroître la gamme des outils de modélisation des préférences des décideurs, elle tire également bénéfice de contributions portant moins sur les instruments et les modèles que sur les grands principes qui les fondent.

Ainsi, de fréquents détours épistémologiques et philosophiques sont nécessaires à qui veut comprendre ce que sont les rôles, la place, les objectifs de l'aide, du facilitateur, du modèle. Les sciences sociales et la philosophie fournissent des grilles de lecture qui éclairent les positionnements possibles d'une aide à la décision et qui orientent la conception des méthodologies.

Ceci est particulièrement vrai pour l'aide à la décision en situation où les décideurs et / ou les parties prenantes et / ou les intervenants dans le processus d'aide à la décision sont multiples. L'aide à la décision de groupe s'inscrit dans un contexte social, organisationnel et les choix méthodologiques et techniques sont de nature à impacter sensiblement la nature des interactions entre participants au processus. De ce fait, c'est la capacité de l'aide à la décision à produire des solutions acceptées par tous qui est en jeu.

Quelle est la nature des dialogues et des interactions que l'aide multicritère à la décision peut produire en situation d'acteurs multiples ? Quelle grille de lecture permet à l'aidant de l'analyser et de prendre position ? A quel point cette prise de position conduit-elle à influencer la façon d'utiliser les modèles voire les modèles eux-mêmes ?

Un concept proposé par la philosophe américaine du début du siècle dernier, Mary P. Follett alimente ce type de questionnement. Il s'agit du concept d'intégration utilisé pour caractériser un type d'interaction sociale. Nous souhaitons soumettre au débat une utilisation du concept pour caractériser ce qu'est ou pourrait être l'aide à la décision.

2. Mary P. Follett ou les vertus du processus de groupe et du conflit constructif

Mary P. Follett est née à Boston en 1868. Elle fut, tour à tour, travailleuse sociale, consultante en management et philosophe politique (Tonn, 2003). Pendant une grande partie de sa vie, elle prit la responsabilité de nombreux projets qui l'amèneront à pratiquer ou observer l'animation de groupe ou la négociation (notamment salariale à titre de membre du *Massachussett Minimum Wage Board* dans les années 1910). Elle publie en 1918 *The New State*, ouvrage de philosophie politique dans lequel elle décrit le processus de groupe (*group process*), prémisse du concept d'intégration qu'elle développera très largement dans un autre ouvrage, *Creative Experience,* publié en 1924.

Mary P. Follett a développé un édifice théorique et conceptuel qui place l'individu au cœur de la démocratie et qui s'appuie également sur les constantes interdépendances entre chacun. Ainsi, Follett développe la notion de situation totale. Les individus partagent une seule et même situation et dans la société comme au cœur de petits groupes, des dynamiques d'interactions et d'interdépendance infinies expliquent les comportements de chacun. Dans ce cadre, les différences entre individus nourrissent les processus d'interaction sociale et le conflit (pris au sens de l'existence de différences entre individus) est constructif en ce qu'il permet d'alimenter des processus créatifs et de progrès. C'est pour décrire ces processus que Follett introduit le concept d'intégration.

3. Le conception d'intégration pour Mary P. Follett

Il y a, selon Follett, plusieurs façons de traiter les conflits: la domination, le renoncement, le compromis et l'intégration. Notons que le conflit consiste bien pour l'auteure en l'existence de différences entre individus et non nécessairement en une opposition frontale entre individus. La domination consiste en le fait que dans un conflit entre deux individus, l'un parvienne à tirer avantage personnel de la situation et à obtenir ce qui satisfait son intérêt en particulier. La domination est une modalité de traitement du conflit radicale et facile : c'est d'ailleurs, selon Follett, la modalité vers laquelle les individus se tournent le plus souvent. Le renoncement est proche de la domination : l'une des parties abandonne et renonce à tenter de trouver dans le conflit une issue qui lui soit favorable. Le compromis est une situation peu satisfaisante en dépit des apparences. Elle conduit à des situations dans lesquelles aucune des parties ne trouve pleinement satisfaction. La solution compromissoire est le fruit d'un ajustement quantitatif tel que la quantité de

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

désirs à laquelle l'une des parties renonce est à peu près équivalente à la quantité de désirs à laquelle l'autre partie renonce également (ou non si le compromis n'est pas entièrement équitable). De la sorte, toutes les parties sont perdantes et les différences entre elles ne sont pas réconciliées au travers de solutions qui permettraient de les satisfaire toutes : le conflit persiste et n'est pas source d'enrichissement mutuel comme l'est l'intégration. L'intégration est ainsi très différente en ce qu'elle est un processus d'invention (Kolb et al.,1996), un réajustement qualitatif distinct du compromis, ajustement quantitatif (Follett, 1924).

Par le biais d'interactions entre les individus et d'ajustements, des idées nouvelles émergent et ces idées sont de nature à permettre de trouver des solutions qui satisfassent simultanément et entièrement toutes les parties. Follett parlera plus tard de conflit constructif (Follett, 1925) car les différences entre individus ont conduit à créer des solutions nouvelles non compromissoires et totalement satisfaisantes pour tous. L'intégration n'est pas le résultat final mais désigne le processus lui-même. Il s'agit d'un processus complexe. L'effort à fournir pour intégrer est important car il faut de la créativité et de l'imagination.

Il existe des situations où l'intégration n'est pas possible. Follett le reconnaît mais indique également que le fait de mettre les cartes sur la table et de révéler ses préférences (le terme n'est pas utilisé par Follett qui préfère le terme « désirs ») est souvent une première étape vers l'intégration que l'on croyait impossible avant de découvrir les critères qui fondent les décisions et points de vue de chacun. Ceci conduit à penser que le manque de connaissances relatives aux préférences de l'autre est souvent ce qui empêche que puissent être trouvées des solutions qui, dans un problème de décision, soient mutuellement avantageuses.

Au delà, l'introduction du concept d'intégration conduit à promouvoir les bénéfices de l'interaction entre individus et amène Follett à rejeter fermement l'idée que le vote et que la règle de la majorité sont des formes d'expression nécessaires à la démocratie. La vraie démocratie s'exprime, selon la philosophe, dans les ajustements mutuels trouvés à partir d'interactions vertueuses, d'échanges, de dialogues ; le vote à la majorité ne permet pas cela : tout au plus il agrège des préférences individuelles mais ne contribue pas à la fabrication de préférences collectives.

4. Une lecture de l'aide à la décision à partir du concept d'intégration

Il est possible de faire une lecture d'une démarche d'aide à la décision au sens d'une démarche intégrative en analysant ce que cela implique sur les modalités concrètes de mise en œuvre de l'aide. Les positionnements qui suivent n'ont pas prétention à décrire l'aide à la décision telle qu'elle devrait être mais plutôt l'aide telle qu'elle pourrait être pratiquée ou bien même l'aide telle qu'elle est pratiquée dans certains travaux.

L'aide à la décision où l'expression interactive des différences entre acteurs parties prenantes

L'aide à la décision contribue à introduire ou restaurer une cohérence entre un système d'objectifs et des comportements (Roy, 1985) en faisant recours à un langage formel non discursif (Tsoukias, 2007). Dans un contexte à acteurs multiples, le périmètre du système d'objectifs est naturellement large. La représentation des objectifs et, plus en amont, des valeurs qui guident les comportements des acteurs, est dans ce contexte une composante importante de l'activité d'aide à la décision. La production d'un système de valeur agrégé qui encapsulerait les valeurs de chacun est une tâche complexe. Dans de nombreux travaux, l'on s'aperçoit que l'exercice n'a été possible qu'après avoir mis, dans un temps préalable, les acteurs multiples en situation de pouvoir diverger, exprimer des différences et révéler un conflit au sens de Follett (existence de différences). C'est la première étape d'une aide à la décision intégrative. Notons que Follett aurait probablement rejeté toute utilisation de méthodologies, d'outils ou de systèmes d'agrégation des valeurs ou des préférences individuelles. Une boîte noire produisant une agrégation des préférences individuelles serait ainsi à l'aide à la décision ce que le vote et la règle du choix collectif à la majorité des voix est à la démocratie pour Follett. Une aide à la décision intégrative privilégie l'interaction et le dialogue concret entre les acteurs pour que les différences de chacun puissent être exprimées, faire sens (la construction du sens développée par Landry, 1995) et que dés cette étape, des ajustements individuels puissent, le cas échéant, commencer à se produire.

L'aide à la décision, processus créatif

L'intégration, au sens de Follett, se distingue très clairement du compromis. Il ne s'agit pas de trouver des solutions qui satisfont partiellement tous les acteurs mais des solutions nouvelles qui satisfont totalement les acteurs. Follett milite pour un processus créatif vertueux : bâtir des idées nouvelles ; trouver à partir d'une analyse fine et approfondie des désirs de chacun ce qui fait désaccord et créer de nouvelles solutions. L'aide à la décision intégrative serait donc une démarche de recherche et de conception d'alternatives nouvelles. Cela signifie que l'ensemble des actions ou alternatives dans une démarche d'aide à la décision devient nécessairement instable, ayant vocation à être un support provisoire, pour l'analyse. De nouvelles actions potentielles pourraient ainsi être construites au cours du processus d'instruction d'un premier ensemble d'actions potentielles. L'élicitation des critères (utilisés comme supports de points de vue multiples pour évaluer les actions potentielles) est une activité au cours de laquelle la construction de nouvelles actions potentielles doit être rendue possible et les aller - retour entre construction des actions et identification des critères sont alors permanents et contributeurs du processus d'intégration. S'il est en cohérence avec un positionnement constructiviste de l'aide à la décision (Roy, 1993), ce point contredit, malgré tout, une position souvent implicite dans de nombreuses démarches d'aide à

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

la décision qui dit que l'ensemble des actions doit être stabilisé et défini pour que puisse être définie une famille de critères. La vision intégrative de l'aide à la décision invite plutôt les acteurs de la démarche à considérer le plus possible que l'ensemble des actions est provisoire, fluctuant, servant à concevoir de nouvelles solutions, dominantes. Aux problématiques classiques de description, sélection, choix, rangement, tri, se substituerait alors celle de conception.

Aide à la décision, structuration continue de problème

Le concept d'intégration ne revisite pas complètement les fondamentaux de l'aide à la décision. Dans le champ de l'aide multicritère à la décision, de nombreux travaux insistent sur les phases de formulation de problème et l'importance de passer du temps à mieux le définir. Les méthodes de structuration de problème constituent également un champ de recherche fertile. La dimension d'intégration sur laquelle nous insistons amène néanmoins, selon nous, à considérer que la formulation du problème ne peut consister en une seule et unique phase du travail d'aide située en amont de toute la démarche. La formulation du problème est continue et s'enrichit des différences entre acteurs mises à jour tout le long du processus d'aide à la décision, y compris dans les phases souvent présentées comme située en aval, succédant à la phase de formulation d'évaluation d'un ensemble d'actions potentielles sur une famille de critères. La formulation de problème au sens de la représentation d'une situation problématique (Tsoukias, 2008) n'est donc plus juste l'activité consistant en la traduction du problème sous forme d'un ensemble d'actions et de critères. C'est une activité consistant à faire émerger différentes représentations du réel, à les confronter pour faire apparaître les différences et la construction d'un ensemble d'actions, de critères d'un modèle de préférences nourrissent cette activité. Naturellement, ce point milite pour que soient plus nombreuses les recherches qui combineraient habilement les techniques de structuration de problème avec les outils et concepts de l'aide multicritère à la décision ; par exemple : le recours aux techniques de cartographie cognitive pour la construction de familles de critères.

L'aidant, intégrateur

Dans la perspective d'intégration, quel rôle a l'aidant ? Il favorise le processus d'émergence de solutions intégratrices. Pour cela, il doit en premier lieu, être celui qui facilite, favorise et stimule les interactions. Il propose ainsi, le cas échéant, des outils qui permettent d'améliorer la qualité des interactions. Ce faisant, il aide à faire diverger les acteurs et faire apparaître les différences. Il propose également aux participants des reformulations constantes des points de vue de chacun et provoque le débat. En second lieu, il met en place les outils et le cadre pour favoriser la créativité, recourant aux techniques usuelles de créativité mais probablement moins fréquemment utilisées dans des démarches classiques d'aide à la décision. Au final, l'aidant est un intégrateur capable de développer une vue synoptique holiste du problème de décision. Il devient capable de cartographier

les interdépendances entre chacune des parties prenantes, ce qui fait de l'aidant en contexte avec décideurs ou parties prenantes multiples, non seulement un expert en techniques d'aide à la décision mais également un expert des dynamiques de groupes.

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Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

MCDA Research Groups

MCDA Research Groups — MLO Group, Manchester

MLO (Machine Learning and Optimization) is a research group in the School of Computer Science, The University of Manchester, UK. The group conducts leading-edge research in a wide range of techniques and applications of machine learning, optimization, data mining, probabilistic modelling, pattern recognition and machine perception. The group spans the field from new theoretical developments to large applications, and is currently supported by a number of research bodies, including the UK engineering and physical sciences research council (EPSRC), the UK biotechnology and biosciences research council (BBSRC), and several industry partners.

Currently the group consists of eight full-time academics, five full-time postdoctoral researchers, and around fifteen PhD students. It also supports undergraduate and MSc research projects, summer internships, and hosts many visiting researchers.

At least six members of the group count optimization as a key research interest. Jonathan L. Shapiro (Head of Group) does research in estimation of distribution algorithms, reinforcement learning, and is a leading researcher in the theory of genetic algorithms. Pedro Mendes (Professor in the group, and also a Principal Investigator in the Manchester Interdisciplinary Biocentre) does research on inverse modelling of biochemical systems and networks, including work on the underlying optimization methods. He is the main author of the GEPASI and COPASI modelling systems. Richard Neville works in computational intelligence, and is currently developing hybrids of exact optimizers and evolutionary algorithms. Xiaojun Zeng's research includes work on genetic programming, rough sets, fuzzy sets and decision support systems. Gavin Brown has an interest in evolutionary optimisation and speciation techniques, and has also done important work on the balance between bias and variance in classification problems (a bicriterion optimization problem).

In terms of multicriterion optimization, the main researcher in the group is Joshua Knowles. He has been working on multiobjective evolutionary algorithms since about 1998, and is known for developing the PAES and ParEGO algorithms. For more of his, and the group's collaborations, projects and publications relating to MCDA, see the following sections.

Key Collaborators in MCDA-related Work

At University of Manchester

Royston Goodacre, Manchester Interdisciplinary Biocentre
Julia Handl, Decision Sciences Research Group, MBS
Douglas Kell, Manchester Interdisciplinary Biocentre
Ludmil Mikhailov, Manchester Business School

Nationally and internationally

Richard Allmendinger, University College London, UK
David Corne, Heriot-Watt University, UK
Carlos M. Fonseca, University of Coimbra, Portugal
Manuel Lopez-Ibanez, IRIDIA, ULB, Belgium
Marco Laumanns, IBM, Germany
Lothar Thiele, ETH Zurich, Switzerland
Mark Viant, University of Birmingham, UK
Eckart Zitzler, University of Bern, Switzerland

Research Projects Related to MCDA

Current funded projects

MUSCLE This project called Multi-platform Unbiased-optimisation of Spectrometry via Closed Loop Experimenta-tion, is developing multiobjective optimization algorithms for configuring mass spectrometer instruments that are used by drug companies, government labs, and others to analyse complex biochemical samples. Joshua Knowles and Mark Viant are the principal investigators.

Astra Zeneca Drug Safety The MLO group offers MSc research projects and bursaries funded by Astra Zeneca on the broad topic of drug safety. Among the projects offered last year were two involving multiobjective optimization and decision analysis for use in drug safety studies.

Earlier funded projects

CLADE The CLADE (Closed-loop aptameric directed evolution) project pioneered the use of evolutionary compu-tation optimization methods in the design of novel aptamers — DNA molecules with very strong and specific binding to target molecules — with applications in drug design and biomarker development. Douglas Kell was the principal investigator.

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

HUSERMET The HUSERMET (Human serum metabolome in health and disease) project analysed a large number of human blood serum samples to understand more about the metabolic profiles of patients suffering from three common diseases, as well as healthy individuals. Work included the use of (closed-loop) multiobjective optimization to find effective experimental configurations for the mass-spectrometry instruments used in the analysis. Douglas Kell was the principal investigator.

BBSRC David Phillips Fellowship Joshua Knowles was funded for five years to carry out research on the use of multiobjective optimization and evolutionary algorithms in systems and computational biology.

Speculative projects

Multiobjective optimization in machine learning In work with Julia Handl, a multiobjective optimization approach to unsupervised learning was developed. This included the MOCK multiobjective data clustering algorithm (see publications), and related techniques in multiobjective unsupervised feature selection. Work in this area continues.

ParEGO Knowles developed a multiobjective optimization variant of the Efficient Global Optimization approach to expensive optimization / sequential experimental design problems. The method uses weighted augmented Tchebycheff scalarization of the objectives.

Multiobjectivization in PSP In work with Julia Handl, the protein structure prediction (PSP) problem was considered as a multiobjective optimization problem. Techniques developed were entered into the CASP8 and CASP9 international assessment 'contests', and showed promising results including one first place prediction of a protein's tertiary structure.

Nondominated Solutions Archiving Many optimization algorithms for multiobjective problems store the cur-rent approximation to the Pareto set during operation; it is of interest to consider how to update this set online when a size limit is placed on it. In collaboration with Marco Laumanns and Manuel Lopez-Ibanez, a number of advanced techniques for online archiving were tested, and the methods are available at http://iridia.ulb.ac.be/ manuel/archivers

Performance Assessment of MO optimizers In collaboration work with Carlos M. Fonseca, Lothar Thiele, Eckart Zitzler and others, we have implemented several techniques for assessing the performance of (stochastic) multiobjective optimizers over several runs. The tools are available at http://www.tik.ee.ethz.ch/pisa/

Many-objective Optimization The scalability of multiobjective optimization algorithms (with respect to objec-tive number) is an important current issue. In work with David Corne, a number of recently proposed methods for handling many-objective problems were tested with respect to combinatorial optimization problems with up to 20 objectives.

Multiobjective Optimization of Experiment Design The typical approach to multivariate experiment design in the presence of limited resources is the fractional factorial design. We have developed the use of multiobjective evolutionary algorithms (MOEAs) in this context to optimize the choice of experiment sequentially. In research done in collaboration with the Goodacre Group in MIB, we found effectiveness improvements over factorial designs in a laboratory study related to optimizing experimental conditions in Raman spectroscopy.

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Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

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Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
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Recent and Forthcoming Activities

MBSW Julia Handl, Yaochu Jin and Joshua Knowles are organizing a forthcoming PPSN workshop on modelling biosystems with scope to include optimisation and decision analysis techniques. http://mlo.cs.man.ac.uk/events/mbsw/

Dagstuhl 12041 Seminar A seminar entitled Learning in Multiobjective Optimization was convened in January 2012 at Dagstuhl. Joshua Knowles was a co-organizer along with Salvatore Greco, Kaisa Miettinen and Eckart Zitzler. Other attendees from Manchester included Simon French (Professor, recently retired from Manchester Business School) and Theo Steward (Professor, Manchester Business School).

EMO Joshua Knowles is on the Evolutionary Multi-Criterion Optimization (EMO) Conference Steering Committee. Next year's conference is in Sheffield. See http://www.shef.ac.uk/emo2013

DASIG The Operations Research Society has a Decision Analysis special interest group (DASIG). Joshua presented at their annual workshop in June 2011 on 'Current trends in evolutionary multiobjective optimization'.

To contact Joshua Knowles about any of the projects or activities above, please email j.knowles@manchester.ac.uk

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

Forum

Supporting Strategic Decision Making – Recent Trends & Opportunities

By Gilberto Montibeller
Dept. of Management
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The choice of successful strategic options is at the core of organizational success. Private companies have to decide whether they should enter into new markets, react to competitors, invest in new products, and many other high-stake issues. Public companies often have to consider the outsourcing of their services, privatization of public goods, the scope of their operations, among many other strategic challenges, when designing and implementing public policies.

There are many challenges confronted by decision makers in these contexts. Firstly, they typically involve high levels of uncertainty, which may have a huge impact on the potential performances of the strategic options being considered (for instance, private companies might be unsure how a competitor would react to a new product release, and public organisations may struggle with the vagaries of political agendas). Secondly, usually there are many powerful stakeholder involved, either playing with the internal politics of private companies (such as the eternal struggle between commoditization supported by production versus customization favoured by sales), or powerful interest groups inside and outside public organization (as the recent debate about nuclear energy well illustrates). Thirdly, there is an increasing trend for participation in decisions, either because it increases the commitment to the solution chosen, or because it provides procedural justice and thus legitimacy to the decision. But not always it is easy to identify who the decision makers are, particularly for public decisions. Fourthly, the planning horizon for many of those strategic decisions is typically very long. Building up a large production plant, for instance, requires a heavy capital investment and cannot be easily relocated once in place. In public decisions such horizons are still longer, for example, the policies for combating global warming have to consider impacts that may last more than 100 years. Fifthly, any strategic decision typically involves the pursuing of multiple and conflicting objectives, and the setting up of strategic priorities. Private companies are often faced with dilemmas between cost reductions versus quality improvements. Public organisations have to deal with a plethora of competing priorities, constrained by limited budgets, such as the tension between reductions of waiting time versus cost control in hospitals. Finally, each strategic option is a complex package of actions and sub-policies, so evaluating their performance is far from trivial.

Can MCDA help decision makers confronted with such complex strategic problems? In a narrow sense, perhaps not, as the methods have been developed for, and widely employed with, tactical problems, where the abundance of data, the limited planning horizon, the relative stability of the environment, the availability of clearly identifiable decision makers, and the technical nature of the problems make them relatively easier to analyse. (At least when compared with the ones confronted by strategic decision makers. It is telling that the vast majority of MCDA textbooks illustrate the methods with simple decision problems, such as buying a car, a typical tactical problem.)

One could argue that Decision Analysis would provide the modelling support required: uncertainties can be modelled by decision trees, the multiple strategic objectives can be modelled by a multi-attribute utility function, and sensitivity analysis can be employed to check how sensitive the best solution is to variations of input parameters. However, given the long-term horizons involved in strategic decision-making and the high level of uncertainties in the environment, drawing an exhaustive decision tree is far from trivial (Lempert et al. 2003)(Cox 2012). Indeed there is evidence that such exhaustiveness is hard to obtain even for well-known phenomena, such as mechanics identifying reasons for a car breakdown (Fischhoff et al. 1978). One could also argue that specifying all the preferences and priorities a priori might be also very hard, given the lack of concreteness when appraising long-term and hard to imagine consequences (Wright & Goodwin 1999).

The answer to these challenges is, in my view, to adapt our methods and enhance our tools, borrowing ideas from different fields that have dealt with some of the issues involved in strategic decision making which I mentioned above. This is not a new idea, indeed Thomas (1984) has suggested it already in the 1980s in the context of Decision Analysis. But recent conceptual advances in Decision Sciences provide MCDA researchers and practitioners with more powerful toolkits than ever before. I mention some of these trends and opportunities for research and practice next.

Deep uncertainty. Modelling high levels of uncertainty, or what has been called 'deep uncertainty'(Lempert et al. 2003), has been attracting a growing number of researchers. Besides the well-established field of scenario planning, there is a recent focus on integrating scenario planning and MCDA (Goodwin & Wright 2001)(Wright & Goodwin 2009)(Montibeller et al. 2006) (Ram et al. 2010), as well as decision methods that consider deep uncertainty (Lempert et al. 2006)(Cox 2012)(Hall et al. 2012). There are many open questions on this front (Ram & Montibeller 2012): How many scenarios should be considered? How to compare options across scenarios? How to model preferences and priorities under multiple scenarios? Durbach & Stewart (2012) provide a comprehensive review on the modelling of uncertainties

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

and MCDA, but it seems to me that uncertainty has received less attention by our community that it deserves – particularly when we are modelling real-world problems.

Robustness. If the expected utility normative paradigm is hard to implement in strategic decision-making, either because is challenging to define an exhaustive set of outcomes, or because it is hard to pre-specify all preferences, then the overall criterion for comparison has to change. The renewed interest on robustness (Roy 2010) in decision analysis, which was first highlighted in the 1970s (Rosenhead et al. 1972), provides a suitable framework for such assessment. One key challenge for researchers is that there are multiple definitions of robustness and each definition makes some strong assumptions about decision maker's attitudes (such as risk averseness for instance).

Problem structuring. The well-developed field of problem structuring methods (PSMs) (Mingers & Rosenhead 2001) (Shaw et al. 2006) has much to offer to those supporting multi-criteria analysis (Belton & Stewart 2010). It highlights the inherently subjective nature of problem definition and the importance of a shared definition of a problem to be solved (Eden & Sims 1979). This is particularly important for decisions involving multiple stakeholders and conflicting interests among the parties. There are some open questions about the use of PSMs for MCDA, in particular the role of distinctive modelling tools, with very different modelling structures in the same intervention (such as a means-end structure of a causal map versus a decomposed objectives hierarchy (Montibeller & Belton 2006)).

Model structuring. An understudied aspect of MCDA is the structuring of multi-criteria models, which is particularly relevant in strategic decision making contexts, given the challenges in developing such models. Franco & Montibeller (2011) provide a review about the limited prescriptive literature on the subject, and von Winterfeldt (1999) and Morton & Fasolo (2008) review some behavioural issues involved in the modelling. But a more consistent research agenda on the behavioural biases and debiasing strategies in multi-criteria modelling would be very welcome.

Facilitated decision modelling. We suggested recently (Franco & Montibeller 2010) a new conceptualization for OR interventions – facilitated decision modelling – where the model is built on-the-spot with the clients (and which has been used often in decision analysis in 'decision conferences' (Phillips 2007)). One of the key ideas that we highlighted in that review is the importance of considering both model outcomes (such as the ranking of options) and also group outcomes (such as learning and commitment to the implementation of the solution) in multi-criteria interventions. In my experience in

supporting real-world decisions for many clients, this type of approach provides many benefits when compared with a more traditional back room analysis. It helps in building decision makers' confidence about the model and its results, it supports the decision making group in sharing opinions and information, and it increases their commitment towards the strategic option chosen. There is much scope to extend the use of facilitated modelling in several directions. For instance, we have used it regularly to develop multi-criteria based decision support systems – so the model is built using facilitated modelling and then the DSS can be used to support recurrent decision processes – the model to assess animal health threats for the UK Department of Environment and Rural Affairs is a good recent example of such use (Del Rio Vilas et al. 2012).

Long-term consequences. Perhaps the most neglected aspect in MCDA, and crucial for strategic decision making, is how to consider long-term consequences of strategic option. Of course, one simple solution is to calculate the net present value of future benefits and costs, but this is really feasible for goods where inter-temporal rates can be accurately calculated (such as a cost of an investment). For many benefits and some non-monetized costs this is impossible and is a matter of judgment. How such judgments should be made, and discount rates set, is really arguable (Atherton & French 1998). Another tricky problem is how to estimate performances of strategic options. One clever solution is to use system dynamics simulation (Santos et al. 2002), but how should we consider responses with different transient and steady state periods? (For example, an option could provide faster profit growth but reach a low steady state level, against another option which has a lower growth gradient but reaches a higher steady state level.)

Designing strategic options. The vast majority of the MCDA literature deals with the problem of choice: given a well-defined set of options, which one should the decision makers select? But this is hardly the case in strategic decision making, where most of the effort should be devoted to designing better options. There is a very limited literature on the creation of options in MCDA (for a review see Franco & Montibeller (2011)), but clearly this is an area where more empirical work, which could lead to better prescriptive tools, is really needed.

Concluding this letter, there are many interesting avenues of research in supporting strategic decision making and I highlighted some of them here. (A more formal treatment of this subject is given by Montibeller & Franco (2010) and Montibeller & Franco (2011).) From the practice point of view, perhaps the most important paradigmatic change needed is the one that Roy (1993) advocated already in the 1990s: MCDA should be used as a learning tool, helping the decision makers to construct their mental models, their values, and their preferences, when

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

confronted with strategic decisions. The benefits for us, as multi-criteria decision analysts, are potentially huge - our decision support can have a major impact on how strategic decisions are made, decisions which are vital for the health and survival of client organisations.

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Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

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Consultancy Companies

EWG Paper – Cogentus Article – September 2012

Cogentus is a UK-based company working the field of multi-criteria decision aiding. Our Clients are from the public and private sector, based mainly in the UK and US, to whom we provide a range of services and decision support software.
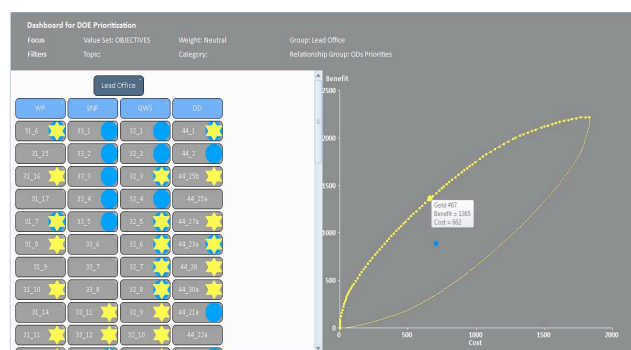
Our Clients include organisations such as the US Department of Energy (DOE), Department of Defense (DOD), Los Angeles Sheriff's Department (LASD) and L'Oreal. For many of these we have used a multi-criteria approach to solving problems for which we have found an elegant methodology to cope with their undoubted complexities. For illustration we will discuss how we manage three issues commonly found in business; one in determining company strategy, two in prioritising a range of projects and three in measuring whether the projects have met expectations.

Strategy Development. There are many useful business frameworks to aid strategy development but one of the most recent ones has been "Blue Ocean Strategy" by Kim and Mauborgne. Although the authors probably didn't realise it, their methodology is based on multi-criteria. They examine a number of customer factors (criteria) and score different organisations against those factors. Rather than choosing the best organisation based on aggregating those factors, the method looks at the differences and examines how to close the gaps. Crucially, for their methodology, they are looking for a different pattern (canvas) to the competitors.

This example is of strengths and weaknesses with criteria (customer factors) along the x-axis and the scores of different organisations on the y-axis. We look for gaps and determine what action can take to close the gaps and whether closing those gaps will improve the overall index.

Prioritisation. We have been heavily involved in prioritising R&D projects for a number of Client programmes. We use a multi-criteria approach to determine the overall benefit of each project. Benefit criteria are developed with the Client and based on the R&D objectives such that there will be a "line of sight" between each project and how they contribute to the overall objective. We use the cost of carrying out the R&D to create a "value-for-money" score for each project and then use a portfolio approach to develop the best overall mix of projects for a range of budget scenarios.

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, nº26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, nº26, Fall 2012.

This example is of a portfolio of a combination of projects against a certain budget limitation. The blue represent the team's original choice of projects. The yellow represents the theoretical most efficient choices for that budget (based on their own data). The goal is to move the blue dot up by swapping projects for ones that deliver more benefit to the organisation as a whole.

Measures of Effectiveness. We have developed a new approach to performance measurement based on multi-criteria. Most performance measurement systems for programmes consider efficiency such as whether we are are we on schedule, on budget and meeting milestones. Some more modern approaches look at Outcomes and ask whether we have we delivered what we said we would deliver. This approach is unique because it asks the question from the perspective of the recipient of the programme – is it delivering what you want it to deliver. The approach came about when analysing large volumes of audience-based survey data that was asking people's opinions about how good a job the US military were doing in Afghanistan. It was apparent that the questions could be considered like criteria and if organised into a value tree could yield some interesting information. The result was extremely exciting as it provided excellent evidence of the strengths and weaknesses and could be looked at from different stakeholder perspectives. The outputs are very similar to the strategy canvas one above but with many more criteria involved.

In all these applications we have extended the traditional multi-criteria decision aiding techniques in several ways.

The first, and arguably most important extension is that we take account of multiple stakeholders in the process. This means not only involving them in meetings and workshops but, more importantly, it means allowing then to use their own value systems. The concept of getting all of the stakeholder to agree on criteria and weights never did seem a sensible approach and we're finding that allowing them to have their own criteria and weights means they are much more engaged. In practice it is surprising that 9 times out of 10 the decision is the same from all stakeholder perspectives. When they are different then it's requires a discussion to look at why there are differences and negotiate an acceptable position for all.

The second extension is that we use evidence to score options wherever possible. We have moved away from "decision conferencing" where individuals provide "scores" in a workshop. The problem with this approach is that there isn't any data to back up the scoring and when the project is reviewed the decision taken cannot be substantiated by a different group of people. We therefore collect the scores beforehand in a survey or form. As far as possible we try to obtain quantitative data but where this is not possible the qualitative data is backed up with documentation that explains why things have been scored as they are. This is very similar process to providing a safety case / safety basis for industrial plants. As long as the author is suitably qualified and experienced and has backed up their judgement with reasoning it is a very strong position on which to base the decision and clearly much more so than "voting" over a few hours in a workshop.

The third extension is to use scenarios to look at robustness. We spend less of our time in workshops debating scores and more on debating how robust the choices are to changes. We look at how changes in value mapping for different stakeholder affect the result and we look at uncertainty in the scores using a three-point estimate technique. We also consider a number of different scenarios that could affect either the criteria or weights as well as if budgets are altered or external changes occur. The group work in developing the scenarios, which are then modelled using software, is an extremely powerful mechanism to ensuring robustness.

A key element underpinning our services is our methodology called the "Cogentus Framework". It has been developed over a number of years by taking individual elements from traditional frameworks and processes and amalgamating into a single framework that we believe addresses the issues around solving problems in complex, multi faceted organisations. We have four steps (cogs) within each one are a number of sub-steps.

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, nº26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, nº26, Fall 2012.

Explore. This is the stage where we define the problem and ensure it is fully understood. *Define Focus (DF)* is used to determine the goals and objectives. What exactly is the problem? Are we looking in the right area and where do we want to be? We then consider *Success Criteria (SC)*; how will we know we are meeting the objectives? What criteria should we be using? How can we measure them? How do we value them? Finally we then move onto *Ideas Generation (IG)*; what are the options available for solving the problem? They can be discrete individuals ones, combinations or groups, scenarios or strategies. Creativity and Triz tools are used to break psychological barriers and bring innovation.

Score. This is the stage where the options are scored against the criteria developed in the previous stage. *Weight Sets (WS)* are used to highlight whether different stakeholders have different perspectives of what is important? We use different weights for different stakeholders so the end result can be seen from those different perspectives. The next step is *Design Datasheets (DS)*; how can we ensure we collect the relevant, and consistent data for each of the options? Finally *Collect Evidence (CE)*; we use the datasheets to collect the underpinning evidence that can be referenced and reviewed.

Evaluate. This is the stage where we evaluate the options based on the scores collected. Firstly we consider *Strengths & Weaknesses (SW)*; looking at the strengths and weaknesses of each option to see whether we can strengthen strengths or mitigate weaknesses. Secondly it's *Stakeholder Preferences (SP)*; do the results depend on what weights different stakeholders place on the criteria? Finally look at *Improve Ideality (II)*; can we increase benefits while reducing costs and harms?

Implement. This is the stage, post decision, where we look for continuous improvement. *New Ideas (NI)*; what happens if someone has a new idea? How can we establish whether we ought to change tack or keep going? *Change Control (CC)*; if we do change tack, how do we manage that change? Finally *Reporting and Communication (RC)*; how do we inform stakeholders of progress? Are we meeting the expected benefits and costs predicted and assumed in the decision?

The second key element in delivery is our multi-criteria software, Promax. This is based on multi-attribute utility theory and combines ranking and resource allocation into the same software (a viewer is available for read-only analysis of models). It has a robust foundation based on sound academic underpinning and we have enhanced the traditional MCDA elements with features that will help us deliver in the complex world of our Client. We have developed a number of useful visualisations of results and have methods to filter criteria and options to cope with large models and different perspectives. As part of the enhancement programme we have integrated problem definition tools to aid setting up the problem correctly in the first place and we also introduced creativity and Triz tool to improve options generation. Some of the features used regularly in the examples above are:

- Mind mapping – building value trees and hierarchies of options by dragging.
- Time Slices – looking at how results change over time.
- Ignore Options – filtering out options not selected during stage gate progression.
- Relationships – identifying dependencies and subsequent changes in benefits.
- Notes – adding rich notes including images, text and attachments to explain options or criteria.
- Perspectives – having multiple ways of structuring model for different stakeholders such as multiple value trees, multiple weighting methods, multiple weight sets and multiple option hierarchies.
- Three Point Estimating –establishing how uncertainty in scores affects results.
- Filtering – ability to show only options or criteria that are interesting for the stakeholder / perspective under consideration.
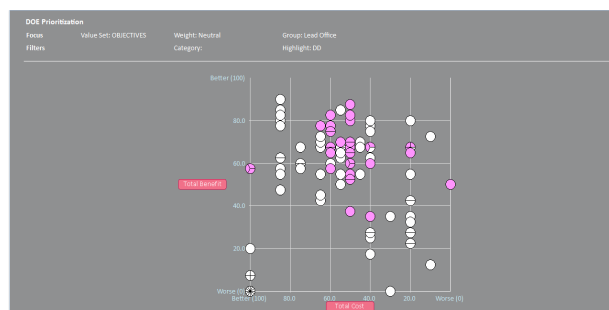
This example is of a project portfolio for a whole organisation. It shows a range of projects and those with greatest benefit and least cost shown in the top left boxes. The highlighted projects reflect the distribution of one particular Division's projects.

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, nº26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, nº26, Fall 2012.

Software

Implementation of ELECTRE TRI in an Open Source GIS

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Summary

The use of multiple criteria decision aid in the context of spatial decision problems has gained much interest in the last years. Several papers have appeared on this subject. Malczewski has reviewed and analyzed the literature dealing with MCDA and GIS on the period from 1991 to 2006 [12,13]. This analysis emphasizes the lack of MCDA software included in GIS.

On this basis, we decided to implement a decision analysis tool inside an existing GIS in a way that allows to make it available to a large community. One of the MCDA procedure adapted for the kind of problems encountered in spatial decision is ELECTRE TRI, which we have chosen to integrate in a GIS.

In what follows, we describe the guidelines we have followed to implement ELECTRE TRI inside a GIS and illustrate its use on an example of real spatial decision problem.

Introduction

Geographic Information System (GIS) are often used to support spatial decision. However, multiple criteria methods are not widely used within GIS. Several reasons therefore have been identified by [4], one of these being the lack of MCDA methods fully integrated in a GIS.

Malczewski [12,13] presents an overview of all articles linked to GIS and MCDA published between 1990 and 2006. Since 1990, the number of papers on the subject keeps increasing. In his studies, Malczewski categorizes the articles considering the coupling strategy adopted between the MCDA software and the GIS. He observes that, in most articles, a loose coupling or no coupling at all has been used, i.e. the two softwares are either completely independent or their joint usage is not easy. On the contrary, there are few articles describing a tight or a full integration, one of the reasons being the lack of MCDA software implemented in GIS. This is one of the reasons which led us to implement a multiple criteria decision analysis software directly inside an existing GIS.

Chakhar [4] also points out that experts in GIS are not familiar with decision analysis. An objective of our implementation is to have a method which can be easily used by someone familiar with GIS and which is useful for spatial decision problems. In order to meet this requirement we have chosen to integrate the ELECTRE TRI procedure which allows to assign each alternative to one in a ordered set of pre-defined categories. In the case of a spatial decision problems, the alternatives are spatial units.

Finally, notice that multiple criteria methods developed in the past are, often, no longer accessible or are not maintained anymore. This is why we have opted for an open source implementation of the multiple criteria method. It gives the opportunity to other developers to re-use the source code for other projects.

Strategy of integration

As we want to facilitate the use of the multiple criteria procedure, we have opted for a full integration as described by Malczewski [12,13].

In order to implement the MCDA procedure into the GIS, we followed a strategy similar to the one described in [4]. It is summarized in figure 1.
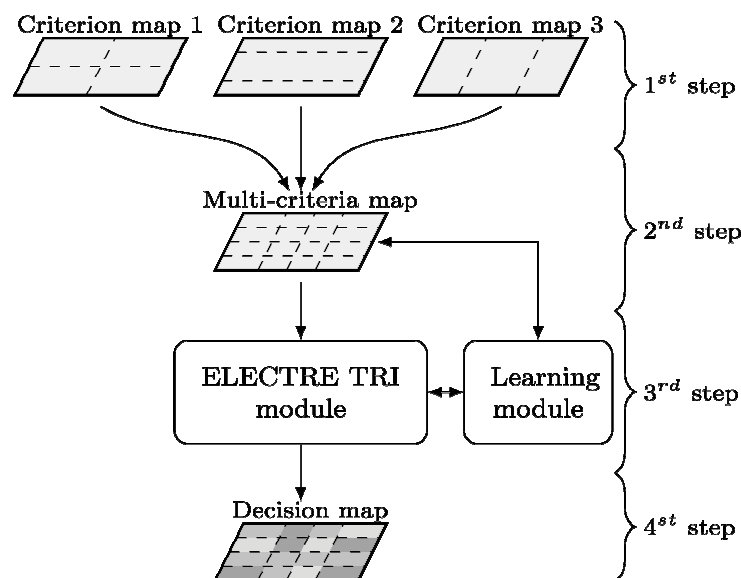

Figure 1. Steps to build a decision map

We assume that a set of m *criterion maps* has been created thanks to the GIS tools. A *criterion map* is a vector layer composed of a set of spatial units evaluated on a single criterion. A *multi-criteria map* is then generated by performing an intersection on all *criterion maps*. This operation is performed using the GIS vector tools. The *multi-criteria map* is a vector layer which associates to each spatial unit (possibly obtained as intersection of spatial units of the *criterion maps*) the m-tuple of values taken by the criteria on that unit. It represents all the spatial entities which have to be assigned to a category by the ELECTRE TRI procedure.

Once the *multi-criteria map* has been built, the ELECTRE TRI procedure can be applied thanks to the ELECTRE TRI module integrated in the GIS. The purpose of the module is to allow to enter the parameters of the ELECTRE TRI procedure and generate a *decision map* (see figure 2). The resulting *decision map* is a vector layer

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

containing the same spatial units as the *multi-criteria map* from which it has been generated; each spatial unit is assigned to a category as determined by the ELECTRE TRI procedure.
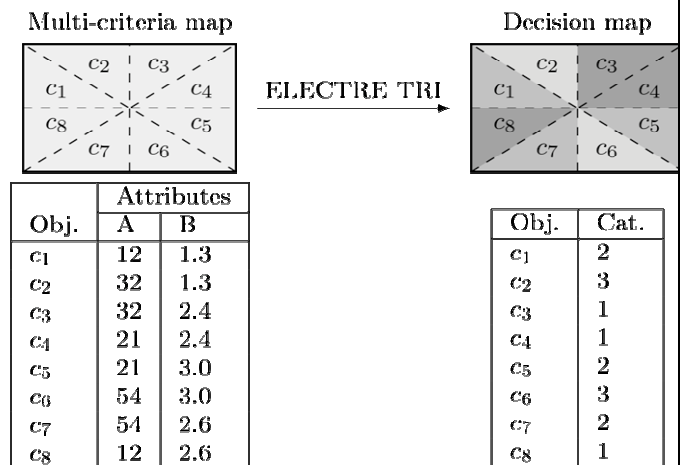

Multi-criteria map		
c_2	c_3	
c_1		c_4
c_8		c_5
c_7	c_6	

Obj.	Attributes	
	A	B
c_1	12	1.3
c_2	32	1.3
c_3	32	2.4
c_4	21	2.4
c_5	21	3.0
c_6	54	3.0
c_7	54	2.6
c_8	12	2.6

Obj.	Cat.
c_1	2
c_2	3
c_3	1
c_4	1
c_5	2
c_6	3
c_7	2
c_8	1

Figure 2. From *Multi-criteria map* to *Decision map*

Fixing or eliciting the parameters of an ELECTRE TRI model is generally a difficult step in the decision analysis process. The method, in its original form [18], involves many parameters, including the definition of the profiles limiting each pair of consecutive categories and for each criterion, its weight, indifference, preference and veto threshold. A simpler version has been proposed in [1,2]. It is usually easier for a decision maker to give examples of assignments instead of directly fixing values for weights or profiles. The parameters are then learned from assignment examples (e.g. by a mixed integer program). Several papers are dealing with the learning of parameters of an ELECTRE TRI model (see [17,16,15,7,6,3]). The learning of the parameters of the simple version of ELECTRE TRI has been empirically studied in [11]). In the case of a spatial decision problem, the assignment examples correspond to spatial entities of the *multi-criteria map* assigned to one in the ordered pre-defined categories.

Choice of the GIS

Nowadays numerous GIS are available. Some of them are specialized for applications in a particular field (e.g. JGrass [9], dedicated to hydro-geomorphology) while others are more general and can be used in several spatial decision contexts. As we want to give the possibility to use the MCDA procedure to a large community, we choose to implement it in a general purpose GIS.

As said in the introduction, we also want to make the method freely available to users. Therefore we have chosen to carry out the implementation in a free GIS. Moreover we observed that previous multi-criteria implementations of ELECTRE TRI methods were in general not available or not accessible anymore. This is why we opted for an open source implementation of the method inside an open source GIS.

Regarding the strategy described in the previous section, there is a technical requirement for the chosen GIS: it should provide support for vector layers as well as vector tools allowing to perform basic vector operations like intersection, union, etc.

Several GIS are freely available. GRASS [8] and Quantum GIS [20] are the most well-known open source GIS. Quantum GIS has a better user interface compared to GRASS. Moreover, Quantum GIS allows to use the GRASS tools thanks to a plug-in. As said in the introduction, we want a tool which can easily be used by a decision maker, and which includes a convivial user interface.

Quantum GIS also has functionalities allowing to manipulate the vector layers, including the possibility of performing intersections of two vector layers. The latter gives the possibility to build up *criterion maps* associated to the spatial decision problem and then to construct the *multi-criteria map* which is needed as input to the ELECTRE TRI plug-in. These are the reasons why we have chosen Quantum GIS to receive our implementation of the ELECTRE TRI procedure.

Quantum GIS has an advanced user interface which is easy to use and gives the possibility to easily add a functionality. It is possible to make the decision procedure fully integrated into the GIS and make it available through a button like any other tool. Figure 3 represents the interface of the GIS and the extension manager. The ELECTRE TRI plug-in is fully integrated into the GIS. As shown in figure 3, it is easy to use it in the GIS: the user just has to push the button associated with the ELECTRE TRI plug-in. Doing this makes the main window of the plug-in pop up.
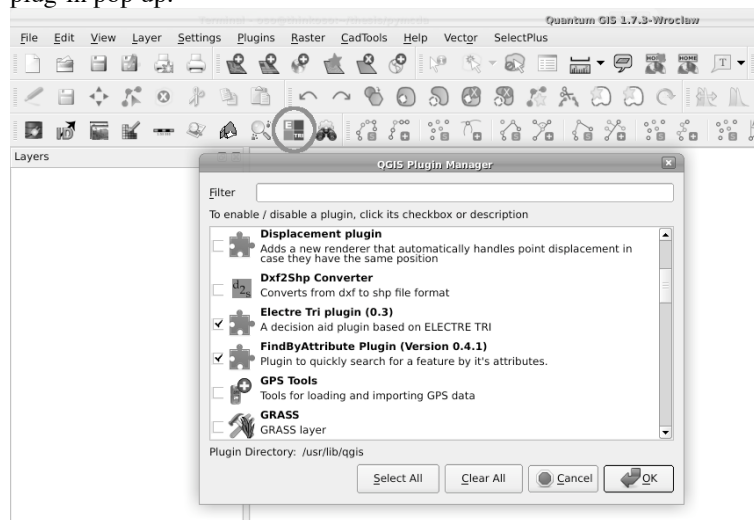

Figure 3. Main window and extension manager of Quantum GIS

Application

To illustrate the use of the plug-in implemented in the GIS, we propose an application which has been studied by Metchebon in [14].

Presentation of the problem

In Burkina Faso, the basin of the Loulouka river is subject to landscape degradation. The authorities want to prevent further damages in the region by applying some actions. Before determining the best policy to apply, the state of

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, nº26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, nº26, Fall 2012.

the spatial units has to be assessed. The studied zone has been split in 229 spatial units of 25 ha. In his thesis, Metchebon first identifies the factors that intervene in the assessment of each unit, including human factors such as the use of proper cultural practices by the local populations. He identified 11 factors and created a *criterion map* for each of them. Each spatial unit of such a map is assessed with respect to the corresponding factor on an appropriate scale going from adequate to inadequate. Metchebon wanted to determine to what extent each partial unit is at risk from the point of view of sustainable development. In order to answer this question, the ELECTRE TRI procedure has been used to build up a *decision map* which assigns each spatial entity a certain level of risk of degradation.

Building the decision map

Once the 11 *criterion maps* have been elaborated, a *multi-criteria map* is created using the vector tools of Quantum GIS. The ELECTRE TRI plug-in is then invoked by clicking the corresponding icon. Figure 4 shows the main window of the plug-in where the criteria can be selected and their weights defined. It is also possible to select the sense of increasing preference on each criterion, i.e. whether it is a criterion that has to be maximized or minimized.
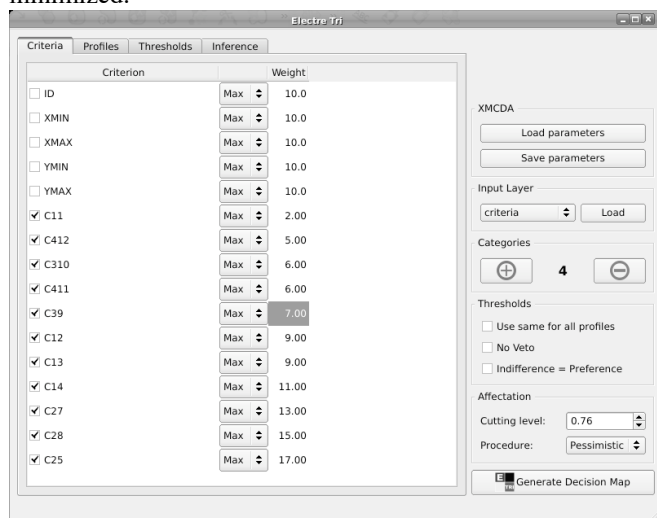

Figure 4. ELECTRE TRI plug-in: *Criteria* tab

The plug-in offers the possibility to specify the number of profiles by using the buttons located to the right of the window. The *Profiles* tab (figure 5) allows to enter the evaluations of the profiles delimiting the categories of the ELECTRE TRI model. The *Thresholds* tab enables to set a veto, an indifference or a preference threshold. Note that the plug-in is conceived to work with both the original method and the simple version of ELECTRE TRI based on [1,2])
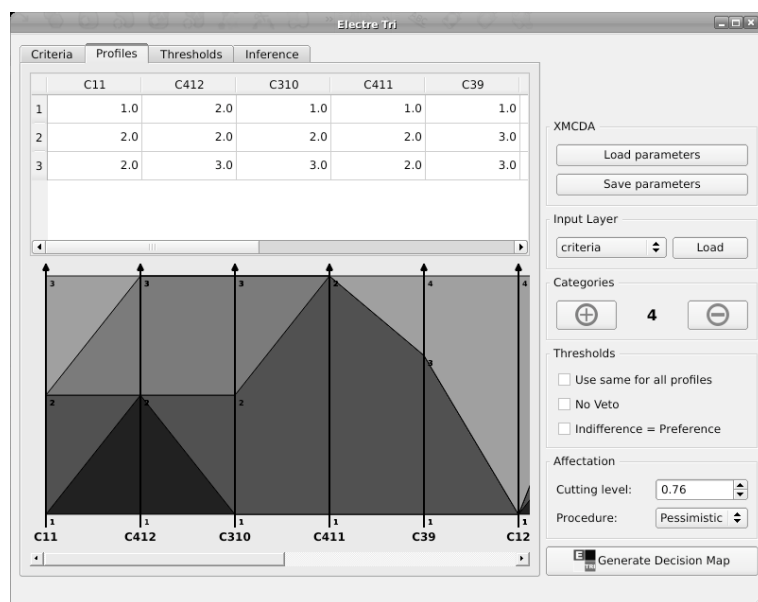

Figure 5. ELECTRE TRI plug-in: *Profiles* tab

Metchebon determined the ELECTRE TRI parameters with the collaboration of an environmental specialist. He defined a model involving 4 categories going from inadequate to adequate. The parameters are entered in the ELECTRE TRI plug-in through the interface shown in figures 4 and 5. Once the parameters have been entered, the *decision map* is generated by pushing the button *Generate Decision Map*. The *decision map* resulting from the pessimistic procedure is shown in figure 6.
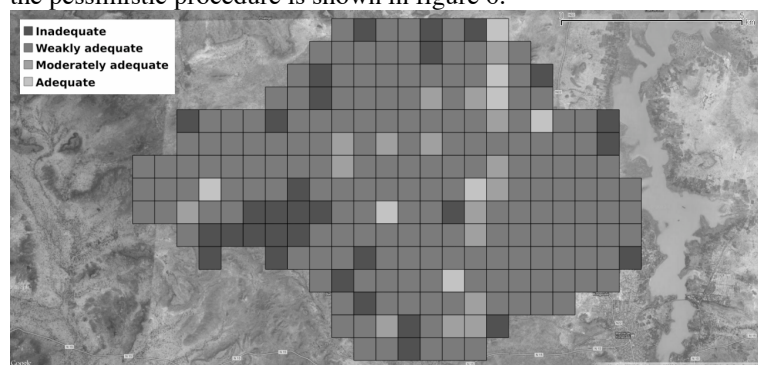

Figure 6. Loulouka catchment basin: *Decision map*

Learning of parameters

As said previously in the strategy of integration, it is generally easier for a decision maker to give assignment examples than explicitly eliciting the parameters of an ELECTRE TRI model. The plug-in allows to learn, partially or globally, the parameters of a Bouyssou-Marchant ELECTRE TRI model. See [10,11,19] for more details about the mixed integer programs used to learn the parameters. Figure 7 shows the *Inference* tab. To perform the inference of the parameters the plug-in calls a web-service which is part of the Decision Deck infrastructure (see [5]).
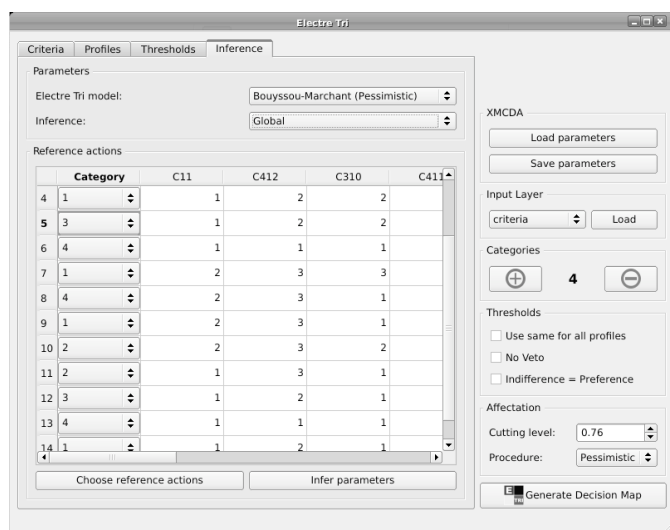
Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, nº26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, nº26, Fall 2012.

Figure 7. ELECTRE TRI plug-in: *Inference* **tab**

Conclusion

In this paper we briefly described how we implemented the ELECTRE TRI plug-in implemented in Quantum GIS and what are the functionalities of the system. This plug-in is fully integrated in the GIS and does not require extra manipulations to be installed. The source code is available at https://github.com/oso/qgis-etri. Our choice to implement it as an open source program gives the possibility to re-use the source code in other programs.

The interface proposed to the user has been conceived to be easily used by a normal GIS user. Further improvements in this field can still be expected, especially those related to the user interface of the inference module.

The plug-in enables the user to learn the parameters of a simple ELECTRE TRI model (proposed by Bouyssou and Marchant). However the mixed integer program used to learn the parameters quickly becomes unsuitable for large instances and large learning sets because of the computing time it requires. We recently started research work in view of reducing the computing time needed to learn the parameters of an axiomatic ELECTRE TRI model.

Research in the domain of MCDA methods integrated into GIS is still in its early stages. Even if in the last past years several papers were published on the subject, we cannot say that MCDA has been adopted by the GIS users. The lack of easily available software is certainly one of the reasons for this. Our Quantum GIS plug-in aims to help going in this direction.

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European Working Group "Multiple Criteria Decision Aiding"
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About the 76th Meeting
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The 76th meeting of the European Working Group "Multiple Criteria Decision Aiding" (EWG-MCDA) was held in Portsmouth (United Kingdom), the 13th-15th September 2012. We were especially glad to bring back to United Kingdom the EWG-MCDA after 34 years (the 7th EWG-MCDA was organised in 1978 in York). The organisation of the meeting in Portsmouth Business School was not a coincidence as the MCDA is one of the core research areas of the University.

Scientific Programme

The 76th meeting was attended by 46 participants from 12 countries: United Kingdom, Hungary, France, Spain, Poland, Luxembourg, Belgium, Greece, Italy, Nederland, Malta and Kingdom of Saudi Arabia. Fifteen papers were presented, three papers were included for discussion and six posters were presented by young MCDA researchers. Five streams were presented: Outranking methods, Clustering, AHP, Transports and MCDA Applications.
A round table on the theme "*Fairness in Group Decisions*" was held by Sébastien Damart (Université de Rouen), Gilberto Montibeller (LSE) and Dylan Jones (University of Portmsouth). The passionate debate involved a large and active participation.

Full papers and abstracts were printed in the proceedings (http://mcda76.port.ac.uk). A special issue in the International Journal of Multi-criteria Decision Making will gather the best papers after a peer-review process (http://www.inderscience.com/info/ingeneral/cfp.php?id=1986).

Social Programme

The gala dinner was held in the Southsea castle, where a Scottish piper welcomed the delegates. The networking excursion led us in the historic dockyard with the visit of the HMS Victory (the oldest commissioned warship in the world and a proud memorial to Vice Admiral Lord Horatio Nelson), the HMS Warrior 1860, the harbour tour with view on aircraft carriers, fleet of destroyers, frigates, mine warfare ships and offshore patrol vessels and finally the Spinnaker tower gave us the possibility to with see Portsmouth and Isle of Wight from the high. Finally an Indian lunch closed the meeting with an exotic touch.

Organising committee
Alessio Ishizaka (conference chair)
Dylan Jones (Social events organiser and conference bags)
Zhougeng Lin (Flyers and maps)
Kyriacos Antoniades (Web developer)
Dimos Loukas (Programme manager)
Jana Ries (Reception)
Ian Stevens
Jolanta Poplawska
Ashraf Labib
Allyson Hunt (Administrative support)
Eric de Greef, Sharon Beech and Georgie Edwards (finance team)
PROGRAMME

Thursday 13th September 2012/ Jeudi 13 septembre 2012
10.00-12.00   Registration / enregistrement
       Poster session / session de posters
12.00-13.00   Lunch / repas
13.00-13.30   Opening ceremony / cérémonie d'ouverture

13.30-15.00   Outranking methods (chair :Gilberto Montibeller)
13.30-14.00   An easy-going aggregation procedure for ranking policies evaluated according to multiple indicators (Pierre Kunsch – ULB)
14.00-14.30   Aide à la décision dans une structure de pilotage coordonnée
(L. Berrah ; Vincent Cliville - LISTIC Polytech Annecy Chambéry)
14.30-15.00   Bipolar PROMETHEE
(Salvatore Corrente, Josè Rui Figueira, Salvatore Greco - University of Catania)

15.00-15.30   Coffee break / Pause café

15.30-17.30   Clustering and other (chair : Michael Wood)

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

15.30-16.00   On clustering in MCDA
(Alexandru-Liviu Olteanu - University of Luxembourg)
16.00-16.30   Multicriteria preference clustering
(de Vicente y Oliva, M., Manera Bassa, J. - Universidad Rey Juan Carlos)
16.30-17.00   Integrating Cognitive Mapping Analysis into Multi-Criteria Decision Aiding
(Amidou Kpoumie, Sébastien Damartb, Alexis Tsoukiàs – Université Paris Dauphine)
17.00-17.30   Linguistic Decision Making with Probabilities, Weighted Averages and OWA Operators
(José Merigo - University of Manchester)

19.00   Conference dinner / Dîner de gala (Southsea castle)

Friday 14th September 2012/ Vendredi 14 septembre 2012
9.00-10.30   AHP (chair : Alessio Ishizaka)
9.00-9.30   A Pairwise Comparison Approach to Swiss-system Tournament Rankings
(Laszlo Csato - Corvinus University of Budapest)
9.30-10.00   Sensitivity analysis in MCDA to deal with subjective and stochastic uncertainty
(Marjan Hummel, Karin Groothuis-Oudshoorn, Henk Broekhuizen, Maarten IJzerman - University of Twente)
10.00-10.30   Inconsistency analysis through the completion of a pairwise comparison matrix
  (Attila Poesz, Sándor Bozóki, József Temesi - Corvinus University of Budapest)

10.30-11.00   Coffee break / Pause café

11.00-12.30   Transports (chair : Martin Read)
11.00-11.30   Transport infrastructures safety: a case study about public policy-making
(Lucertini Giulia; Alessandro Olivotto; Chabane Mazri; Alexis Tsoukias - Université Paris Dauphine)
11.30-12.00   Multicriteria decision analysis applied to road safety evaluation : global methodology and problem structuration
(Renaud Sarrazin - Belgian Road Research Centre)

12.00-13.30   Lunch / repas

13.30-14.00   Preparation of next meetings/ Vie du groupe

14.00-15.00   Round table / Table ronde (chair: Roman Slowinski)
          Fairness in Group Decisions
Sébastien Damart (Université de Rouen)
Gilberto Montibeller (LSE)
Dylan Jones (University of Portmsouth)

15.00-15.30   Coffee break / Pause café

15.30-17.00   MCDA Applications and others (chair Salvatore Greco)
15.30-16.00   Using TOPSIS for sustainable assessment of government bond funds
(Amelia Bilbao-Terol, Mar Arenas-Parra, José Antomil-Ibias, Veronica Caal-Fer - Universidad De Oviedo)
16.00-16.30   Non-dominance prioritisation method for intuitionistic fuzzy preference relations
(Jian Wu; Francisco Chiclana - De Montfort University)
16.30-17.00   Multicriteria decision support for flood disaster management
(Zoe Nivolianitou,B. Synodinou, D.Manca, S.Brambilla - NCSR DEMOKRITOS)

Saturday 15th September 2012/ Samedi 15 septembre 2012
Networking excursion including lunch (Historic Dockyard)

Posters session:
- Ersilia Liguigli, Sophia Sachse (ITWIIN) - *Project Work - Innovation Facilitator in ITWIIN*
- Zhougeng Lin, Dylan F. Jones (University of Portsmouth) - *Combining Simulation and Multi-objective Optimisation for Equipment Quantity Optimisation in Container Terminals*
- Bruno Domenech, Laia Ferrer-Martí, Rafael Pastor (Technical University of Catalonia) - *Multicriteria approach to design autonomous rural electrification projects*
- Dimos Loukas, Alessio Ishizaka, Jana Ries, Ashraf Labib, Djamila Ouelhadj, Dylan F. Jones (University of Portsmouth): *Automated Routing for Unmanned Aerial Vehicles- A MCDA approach*
- Kyriacos Antoniades, Alessio Ishizaka, Ashraf Labib, (University of Portsmouth): *Reasons, detection and correction of inconsistencies in the AHP*
- Rita Assogna, Gianna Avellis, Raffaella Di Sante (ITWIIN) - *Women and entrepreneurship – Addressing the needs of women in order to facilitate innovation space*

Papers submitted to discussion:
- Salvatore Corrente, Salvatore Greco (University of Catania), Roman Słowiński (Poznan University of Technology), *Searching for minimal preference information inducing necessary preferences*
- Salvatore Greco (University of Catania), Yannis Siskos (University of Piraeus), Roman Slowinski (Poznan University of Technology) *Entropy measures to control robustness in ordinal regression models*

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

- Barbara Wilson, Alastair Wilson (Quest Mediation)
  Why is Fairness 'Grubby?' - Semantics, Etymology and Perspectives in Dispute Resolution

Forthcoming meetings

International Conference on Smart Grid Technology, Economics and Policies
December 3-4, 2012
Nuremberg, Germany
http://sg-tep.org/

2012 IEEE IEEM Conference
December 10-13, 2012
Hong Kong
http://www.ieem.org/

ORSNZ'12
December 10-11, 2012
Victoria University of Wellington, New Zealand
http://conference.orsnz.org.nz

INFORMS Computing Society Conference (ICS 2013)
January 6-8, 2013
Eldorado Hotel, Sante Fe, USA
State: (USA) New Mexico
http://www.informs.org/Community/ICS

Learning and Intelligent OptimizatioN Conference LION 7
January 7-11, 2013
Catania, Italy
http://www.intelligent-optimization.org/LION7/?goback=%2Egde_2112445_me mber_156178723

ASMOR2013 - 2013 Annual Symposium on Management, Operations Research and Economics
January 9-11, 2013
Taipei, Taiwan
URL: info.asmor@asmor.org
http://www.asmor.org/index.asp?id=41

INFORMS Organization Science Winter Conference 2013
February 7-10, 2013
Sheraton Steamboat Resort, Steamboat Springs, USA
http://www.informs.org/Pubs/OrgSci/News/Organization-Science-Winter-Conference

ROADEF 2013
February 13-15, 2013
Troyes, France
http://roadef2013.utt.fr/

ICORES 2013 - 2nd International Conference on Operations Research and Enterprise Systems
February 16-18, 2013
Barcelona, Spain
http://www.icores.org

ICGCTI2013 - The First International Conference on Green Computing, Technology and Innovation
March 4-6, 2013
Technology Park Malaysia Bukit Jalil, Malaysia
http://sdiwc.net/conferences/2013/Malaysia4/

EMO 2013 - 7th International Conference on Evolutionary Multi-Criterion Optimization
March 19-12, 2013
Sheffield, UK
http://shef.ac.uk/emo2013

5th International Workshop on Multiple Criteria Decision Making'13 (IWoMCDM'13)
March 17-19, 2013
Ustron, Poland
http://www.iwomcdm.ae.katowice.pl/

7th IMA Quantitative Modelling in the Management of Health and Social Care
March 25-27, 2013
Woburn House Conference Centre, London, United Kingdom
http://www.ima.org.uk/conferences/conferences_calendar/ quantitative_modelling_in_the_management_of_health_an d_social_care.cfm

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

EuroGP 2013, 16th European Conference on Genetic Programming
April 3-5, 2013
Vienna, Austria
http://www.evostar.org

2013 INFORMS Conference on Business Analytics & Operations Research
April 7-9, 2013
Grand Hyatt San Antonio, San Antonio, Texas, USA
http://meetings.informs.org/analytics2013/

77th Meeting of the EWG on MCDA - MCDA'77. 11-13 April, 2013, Rouen, France. Organizer: Université de Rouen Contact: Sébastien Damart, Christian Hurson

GIAMS 2013 - 2013 Global Information and Management Symposium
April 15-17, 2013
Bangkok, Thailand
http://www.giams.org/index.asp?id=6

IEEE MCDM 2013 - IEEE Symposium on Computational Intelligence in Multicriteria Decision-Making
April 15-19, 2013
Singapore
http://www.ntu.edu.sg/home/epnsugan/index_files/SSCI2013/

3rd Annual Intn'l Conference on Operations Research and Statistics (ORS 2013)
April 22-23, 2013
Singapore
http://www.orstat.org/

5th INTERNATIONAL CONFERENCE ON MODELING, SIMULATION AND APPLIED OPTIMIZATION
April 28-30, 2013
Hammamet, Tunisia
http://www.icmsao.org

INFORMS Revenue Management and Pricing Conference 2013
June 6-7, 2013
Georgia Institute of Technology, Atlanta. USA
http://www.informs.org/Community/revenue-mgt

22nd International Conference on Multiple Criteria Decision Making,
MCDM2013
June 17-21, 2013
Málaga, Spain
http://www.mcdm2013.com

MIM '2013 - IFAC Symposium on Manufacturing Modelling, Management, and Control
June 19-21, 2013
Saint Petersburg State University, Russia
http://mim2013.org/

EURO - 26th European Conference on Operational Research
EURO-INFORMS Joint International Meeting
July 1-4, 2013
Rome - Università Sapienza, Italy
http://www.euro2013.org/

GECCO 20'13 - Genetic and Evolutionary Computation Conference
July 6-10, 2013
Amsterdam, The Netherlands
http://www.sigevo.org/gecco-2013/

INFORMS Marketing Science Society Conference 2013
July 11-13, 2013
Swissôtel The Bosphorus, Istanbul, Turkey
http://www.informs.org/Community/ISMS/

INFORMS Applied Probability Society Conference 2013
July 14-17, 2013
Marriott Costa Rica, San Jose, Costa Rica
http://www.informs.org/Community/APS

MIP2013 - Mixed Integer Programming Workshop
July 22-25, 2013
University of Wisconsin-Madison, USA
http://www.ams.org/meetings/calendar/2013_jul22-25_madison.html

11th MCDA/M Summer School 2013
July 22 – August 2, 2013
Helmut-Schmidt-Universität, Hamburg, Germany
http://logistik.hsu-hh.de/MCDAM-2013

INFORMS MSOM Conference 2013
July 28-30, 2013
INSEAD, France
http://www.insead.edu

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, nº26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, nº26, Fall 2012.

5th International Conference on Applied Operational Research - ICAOR 2013
July 29-31, 2013
Lisbon, Portugal
http://www.tadbir.ca

10th Metaheuristics International Conference (MIC 2013)
August 5-8, 2013
Singapore
http://www2.sis.smu.edu.sg/mic2013/

LM13 - Logistics Management 2013
September 11-13, 2013
University of Bremen, Germany

78th Meeting of the EWG on MCDA - MCDA'78. October, 2013, Catania, Italy. Organizer: University of Catania Contact: Salvatore Greco

INFORMS Annual Meeting 2013 Minneapolis
October 6-9, 2013
Minneapolis Convention Center & Hilton Minneapolis, USA
http://www.informs.org

The 36th Annual Meeting of the Society for Medical Decision Making
October 19-24, 2014
Doral Golf Resort and Spa, USA
http://smdm.org/smdm_annual_meetings.shtml

INFORMS Annual Meeting 2014 San Francisco
November 16-19, 2014
Hilton San Francisco, USA
http://www.informs.org

Announcements and Call for Papers

THE 22nd INTERNATIONAL CONFERENCE ON MULTIPLE CRITERIA DECISION MAKING
MCDM for Tomorrow's World
Málaga (Spain), 17 – 21 June, 2013
www.uma.es/mcdm2013
The 22nd International Conference on Multiple Criteria Decision Making will take place in the Mediterranean city of Málaga (Spain), in June 2013. As in all our conferences, the aim is to bring together researchers and practitioners who address Multiple Criteria Decision Making.
We expect about 300 participants from all over the world. The Conference theme is MCDM for Tomorrow's World.
This is the 22nd Conference of the International Society on Multiple Criteria Decision Making, which is an international society with more than 1,700 members from more than 90 countries around the world. For further information about our Society, please visit our webpage at www.mcdmsociety.org.
There will be three plenary talks, delivered by Profs. Ralph L. Keeney (Duke University, Durham, NC, USA), Dylan F. Jones (University of Portsmouth, UK) and Carlos Bana e Costa (Technical University of Lisbon, Portugal). The rest of the conference is basically organized in parallel sessions. No proceedings volume will be published, but several special volumes will be edited in different journals, for those who wish to submit their full papers after the conference.

The important dates for the MCDM2013 Conference are:
• Invited sessions proposals: now open, till October 31st 2012.
• Abstract submission: from November 1st 2012 to January 31st 2013.
• Registration: from February 2nd 2013 to May 3rd 2013.

The new European Journal of Decision Processes founded by EURO is preparing a special issue on risk Management.

CALL FOR PAPERS

Special Issue on Risk Management
Guest Editors:
Simon French (University of Warwick)
Alec Morton (London School of Economics)
Ortwin Renn (University of Stuttgart)

Motivation
Most decision making involves dealing with uncertain consequences and managing these uncertainties. Thus decision process and risk management are intimately interconnected, although their literatures are based in distinct communities. The purpose of this special issue of the EURO Journal of Decision Processes (EDJP) is to explore that relationship and draw together different disciplinary perspectives on risk management and decision.
EJDP-which has been recently established by the Association of European Operational Research Societies (EURO)-publishes papers that contribute to the understanding and appropriate use of operational research in supporting different phases of decision making processes. More information on EJDP is at http://www.springer.com/40070 and at http://www.euro-online.org/web/pages/1497/euro-journal-on-decision-processes

Schedule

Prospective authors are invited to submit a full paper to the Manuscript Central editorial system (https://www.editorialmanager.com/ejdp, article

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

type SI: Risk Management). Alternatively, they may send the Guest Editors a three-page extended abstract describing the proposed contribution (email:a.morton@lse.ac.uk) for feedback.

The planned schedule is as follows:
June 1st, 2012: Deadline for the submission of extended abstracts
September 30th, 2012: Deadline for submission of full papers
November 15th, 2013: Final decision notification
4th quarter of 2013: Publication of Special Issue

The upcoming **MCDA/M Summer School** which will take place next year in Hamburg, Germany (a fist announcement is attached). The website (which is still under construction) can be found here: http://logistik.hsu-hh.de/MCDAM-2013
Certainly something for PhD-students, also for the ones starting their studies in the coming 18 months.

Web site for Annoucements and Call for Papers:
www.cs.put.poznan.pl/ewgmcda

11th MCDA/M Summer School 2013
Helmut-Schmidt-Universität,
Hamburg, Germany
July 22nd – August 2nd , 2013
http://logistik.hsu-hh.de/MCDAM-2013

The Summer School on MCDA/M is a joint event of the International Society on Multiple Criteria Decision Making and the EURO Working Group on Multicriteria Decision Aiding.

Scientific program
The scientific program of the summer school is, each day, organized into two morning and two afternoon sessions (=40 sessions in total). It comprises three parts.

(i) The main part consists of invited lectures on the topics of MCDA/M, i.e. the classical version of the summer school as it always was in the past. Lectures on "Problem Structuring", "Preference Modeling", "Multi Attribute Value/Utility Theory", "Outranking Approaches", "Robust Ordinal Regression", "Multi Objective Optimization", "Interactive Methods", "Multi Objective Combinatorial Optimization", "Multi Objective Evolutionary Algorithms", "Fuzzy Approaches", among others, will be given.

(ii) Besides, computer lab sessions and working groups on case studies are included in the scientific program.

(iii) As a new element, a student stream will be organized, which will give the participating students the opportunity to present their research topics and results to the others and the invited lecturers.

Dates
The MCDA/M Summer School is a two-week event, taking place from July 22ndto August 2nd, 2013. While the official scientific program starts on Monday, 22nd of July, an informal get-together will be organized the evening before (i.e. 21 st of July, 2013).

Registration
Registration to the summer school will open in September 2012. Please notice: The MCDA/M Summer School 2013 is a non-profit event. The aim of the organizers at the Helmut-Schmidt-Universität, Hamburg, is to provide an excellent scientific environment at low costs. This implies that all registration fees collected will go back to the participants in some form (teaching material, lecturers, lunches, social program, etc.).

Call for Papers

Annals of Operations Research

Special Volume: Policy Analytics

Guest Editors:
Katherine Daniell, Australian National University Alec Morton, London
School of Economics David Rios Insua, Royal Academy of Sciences, Spain

The Annals of Operations Research seeks submissions for a special volume
on Policy Analytics. The deadline for submission is 31 October 2012.

The background to the special issue is as follows. The last few decades have seen rapid growth in the capacity of businesses to exploit IT, OR and statistical modelling to collect and process operational and market data in
order to support decisions. As a result, business analytics has become a flourishing field for consulting and business education. In contrast, while government decisions are often supported by traditional policy analysis, few
government departments and agencies have yet managed to make the systematic use of data, evidence, OR methods and cutting-edge modeling. In this call, we therefore invite papers which deal with the application of the methods
and ideas of " analytics " to problems arising in the operational management of public services and in policy

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

making. This special issue seeks papers presenting both conceptual advances and innovative applications, recognising that public sector applications must balance the need for robust and convincing analysis with legitimate public expectations about transparency and opportunities for participation. Papers may deal with contributions through different phases of the policy cycle: from issue identification; policy testing and analysis; to policy implementation and evaluation.

More details of the scope of the SI and submission procedures and deadlines are available at http://rutcor.rutgers.edu/POLICY_ANALYTICS.pdf.

Books

Operations Research
A Model-Based Approach
By Eiselt, H. A., Sandblom, Carl-Louis
ISBN: 978-3-642-31053-9

Covers the standard operations research techniques
Presents an approach to operations research that is heavily based on modeling and makes extensive use of sensitivity analyses
Emphasis is on getting insight into problems rather than computing solutions
The book covers the standard models and techniques used in decision making in organizations. The main emphasis of the book is on modeling business-related scenarios and the generation of decision alternatives. Fully solved examples from many areas are used to illustrate the main concepts without getting bogged down in technical details. The book presents an approach to operations research that is heavily based on modeling and makes extensive use of sensitivity analyses. It is a result of many years of combined teaching experience of the authors. The second edition adds new material on multicriteria optimization, postman problems, Lagrangean relaxation, cutting planes, machine scheduling, and Markov chains. Support material is found on a free website and includes some algorithms, additional fully solved problems and slides for instructors.

Advances in Computational Intelligence
14th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, IPMU 2012, Catania, Italy, July 9 - 13, 2012. Proceedings, Part I-IV
Series: Communications in Computer and Information Science, Vol. 299

Greco, S.; Bouchon-Meunier, B.; Coletti, G.; Fedrizzi, M.; Matarazzo, B.; Yager, R.R. (Eds.)
ISBN 978-3-642-31717-0

These four volumes (CCIS 297, 298, 299, 300) constitute the proceedings of the 14th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, IPMU 2012, held in Catania, Italy, in July 2012. The 258 revised full papers presented together with six invited talks were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on fuzzy machine learning and on-line modeling; computing with words and decision making; soft computing in computer vision; rough sets and complex data analysis: theory and applications; intelligent databases and information system; information fusion systems; philosophical and methodological aspects of soft computing; basic issues in rough sets; 40th anniversary of the measures of fuziness; SPS11 uncertainty in profiling systems and applications; handling uncertainty with copulas; formal methods to deal with uncertainty of many-valued events; linguistic summarization and description of data; fuzzy implications: theory and applications; sensing and data mining for teaching and learning; theory and applications of intuitionistic fuzzy sets; approximate aspects of data mining and database analytics; fuzzy numbers and their applications; information processing and management of uncertainty in knowledge-based systems; aggregation functions; imprecise probabilities; probabilistic graphical models with imprecision: theory and applications; belief function theory: basics and/or applications; fuzzy uncertainty in economics and business; new trends in De Finetti's approach; fuzzy measures and integrals; multicriteria decision making; uncertainty in privacy and security; uncertainty in the spirit of Pietro Benvenuti; coopetition; game theory; probabilistic approach.

Multi Criteria Analysis in the Renewable Energy Industry
By San Cristóbal Mateo, José Ramón
ISBN 978-1-4471-2345-3

Includes numerous examples for problem solving
Provides decision makers with a wide range of quantitative tools Analyzes multi-criteria decision making methods within the renewable energy sector
Decision makers in the Renewable Energy sector face an increasingly complex social, economic, technological, and environmental scenario in their decision process. Different groups of decision-makers become involved in the process, each group bringing along different criteria therefore, policy formulation for fossil fuel substitution by Renewable Energies must be addressed in a multi-criteria context. *Multi Criteria Analysis in the Renewable Energy Industry* is a direct response to the increasing interest in the Renewable Energy industry which can be seen as an important remedy to many environmental problems that

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

the world faces today. The multiplicity of criteria and the increasingly complex social, economic, technological, and environmental scenario makes multi-criteria analysis a valuable tool in the decision-making process for fossil fuel substitution.

The detailed chapters explore the use of the Multi-criteria decision-making methods and how they provide valuable assistance in reaching equitable and acceptable solutions in the selection of renewable energy projects. Common multi-criteria decision-making methods including Analytical Hierarchy Process, PROMETHEE, ELECTRE, TOPSIS and VIKOR are explored in detail with an application case of each method included at the end of each chapter. As such, *Multi Criteria Analysis in the Renewable Energy Industry* is an ideal resource for those groups of individuals, institutions and administration such as local authorities, academic institutions, environmental groups, and governments that, through their priorities and evaluation systems, have interests at stake and directly or indirectly influence the decision-making process.

Multiple criteria decision making'10-11

T.Trzaskalik and T.Wachowicz (Eds.), 2011

ISBN 978-83-7246-722-5, p. 300.

This book contains theoretical and application papers from the field of multicriteria decision making. The authors are faculty members of the University of Economics in Katowice, Department of Operations Research, and researchers from Poland and abroad, collaborating with the Department. This book contains papers about: improving teaching efficiency; sustainbility in mining; application of DEA model with bootstrap to evaluation of SMEs efficiency in the spanish textile industry; multi-criteria decision aiding in project planning using decisions trees and simulation; multi-criteria decision making models by applying the TOPSIS method to crisp and interval data; compromise hypersphere for stochastic dominance model; analytic network process in ERP system selection; the dominance-based rough set approach (DRSA) applied to bankruptcy prediction modeling for small and medium businesses and many more.

Decision-Making and Action

Jean-Charles Pomerol, UPMC, France
ISBN: 9781848214101
Publisher ISTE Wiley, http://www.iste.co.uk
Publication Date: July 2012
Hardback 288 pp. 125.00 USD

Making a decision, of any importance, is never simple. On the one hand, specialists in decision theory do not come within the reach of most policy makers and, secondly, there are very few books on pragmatic decision that are not purely anecdotal. In addition, there is virtually no book that provides a link between decision-making and action. This book provides a bridge between the latest results in artificial intelligence, neurobiology, psychology and decision-making for action. What is the role of intuition or emotion? What are the main psychological biases of which we must be wary? How can we avoid being manipulated? What is the proper use of planning? How can we remain rational even if one is not an expert in probabilities? Perhaps more importantly for managers, how does one go from decision to action? So many questions fundamental to the practice of decision-making are addressed. This book dissects all issues that arise almost daily for decision-makers, at least for major decisions. Drawing on numerous examples, this book answers, in plain language and imagery, all your questions. The final chapter takes the form of a brief reminder everything you have to remember to be a good decision-maker.

 Articles Harvest

(This section is prepared by Salvatore CORRENTE, salvatore.corrente@unict.it)

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Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

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Series 3, n°26, Fall 2012.

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Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

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Groupe de Travail Européen "Aide Multicritère à la Décision"
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Série 3, nº26, automne 2012.

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Responsables : Bernard ROY, Daniel VANDERPOOTEN
(le mardi à 14h00 – salles à préciser)

Prochaines réunions

9 octobre 2012 Conférence de Miguel Couceiro (LAMSADE)
Polynômes latticiels et leur application dans le cadre qualitatif de l'aide à la décision(résumé voir pièce jointe)

23 octobre 2012 Conférence de Stéphane Airiau (LAMSADE)
Generating and testing multi-issue elections
(résumé voir pièce jointe)

13 novembre 2012 Présentation des travaux de Lounes Mammeri(LAMSADE)
Evaluation du confort thermique pour les TGV : conception des méthodes et élicitation des paramètres décisionnels (résumé voir pièce jointe)

27 novembre 2012 Conférence de Tristan Cazenave (LAMSADE)
Le Go fantôme(résumé voir pièce jointe)

11 décembre 2012 Présentation des travaux de Nassim Dehouche(LAMSADE)
Evaluation et sélection multicritères de portefeuilles de projets dans le secteur public

15 janvier 2013 Conférence de Valérie Brison (Université de Mons, Faculté Polytechnique)
Modèles d'aide multi-critère à la décision pour la comparaison de cartes décisionnelles
(résumé voir pièce jointe)

5 février 2013 Conférence de Philippe Vincke (Université libre de Bruxelles)
Indicateurs et outils multicritères (résumé voir pièce jointe)

26 février 2013 Présentation des travaux de Dalal Madakat (LAMSADE)
Approches multicritères pour le traitement de débris spatiaux

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Announcement:

The "Useful links" section of the group's homepage

(www.cs.put.poznan.pl/ewgmcda)

is being enlarged. Contributions of URL links to societies, research groups and other links of interest are welcome.

A membership directory of the European Working Group on "Multiple Criteria Decision Aiding" is available at the same site. If you would like to be listed in this directory please send us your data (see examples already in the directory).

Contact: José Rui Figueira (figueira@ist.utl.pt)

Groupe de Travail Européen "Aide Multicritère à la Décision"
Série 3, n°26, automne 2012.

European Working Group "Multiple Criteria Decision Aiding"
Series 3, n°26, Fall 2012.

**Web site for the EURO
Working Group "Multicriteria Aid for Decisions"**

A World Wide Web site for the EURO Working Group on "Multicriteria Aid for Decisions" is already available at the URL:

http://www.cs.put.poznan.pl/ewgmcda/

Web site Editor: Milosz Kadzinski (Milosz.Kadzinski@cs.put.poznan.pl)

This WWW site is aimed not just at making available the most relevant information contained in the Newsletter sections, but it also intends to become an online discussion forum, where other information and opinion articles could appear in order to create a more lively atmosphere within the group.

Groupe de Travail Européen "Aide Multicritère à la Décision" /

European Working Group "Multiple Criteria Decision Aiding"

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VIENT DE PARAITRE

Décision et Action

www.lavoisier.fr/livre/h3894.html

Jean-Charles POMEROL

Quelle que soit l'importance de la décision, l'hésitation peut paralyser l'action. S'intéressant à la décision pour l'action, le décideur est alors, soit confronté aux théoriciens qui ne se mettent pas à sa portée, soit renvoyé à des études de cas trop souvent anecdotiques.

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Illustré par de nombreux exemples, cet ouvrage répond, dans un langage simple et didactique, aux interrogations des managers.

L'auteur
Spécialiste des systèmes d'aide à la décision, ancien chargé de mission pour l'informatique au département des sciences de l'ingénieur du CNRS, **Jean-Charles Pomerol** a dirigé le laboratoire d'intelligence artificielle de l'université Pierre et Marie Curie (UPMC). Il a été président de l'UPMC de 2006 à 2011. C'est l'ensemble de cette expérience que l'auteur vous fait partager dans ce livre.

Sommaire

Introduction
1. **Qu'est-ce qu'une décision, ou que nous apprend la théorie de la décision ?**
2. **Scénarios et probabilités conditionnelles**
3. **Le processus de décision et sa rationalité, ou que nous apprend l'intelligence artificielle ?**
4. **Intuition, émotion, reconnaissance et raisonnement, ou que nous apprend la neurobiologie de la décision ?**
5. **Décision en présence de critères contradictoires, ou que nous apprend la décision multicritère ?**
6. **La rationalité du décideur, ou que nous apprend la psychologie ?**
7. **Contexte de la décision et rationalité : intention, engagement, confiance, justice, autorité et liberté**
8. **Action : impulser ou gérer ?**
9. **Le *vade-mecum* du décideur-acteur**
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Index général
Index des noms

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