

Multiple Criteria Decision Aiding and some recent contributions

In Multiple Criteria Decision Aiding, a set of alternatives is evaluated on the basis of a consistent family of criteria in order to deal with a choice, ranking or sorting problem. When looking at the evaluations of the alternatives on all criteria simultaneously, the only objective information that can be obtained is the dominance relation that, in general, is really poor. For this reason, one needs to aggregate the evaluations got by the alternatives on the considered criteria by means of some aggregation method such as, value functions or outranking relations. Under this framework, two relevant contributions will be briefly presented: the Multiple Criteria Hierarchy Process (MCHP) and the NEMO-II-Ch method.

In the methods known in literature, it is supposed that the evaluation criteria are all at the same level. However, this is not the case in real world applications where criteria are structured in a hierarchical way. The MCHP permits to handle decision problems in which evaluation criteria are hierarchically structured defining a preference relation in each node of the hierarchy.

Multiobjective Optimization involves several conflicting objectives and, in general, there is not a single optimal solution but a set of alternatives for which it is not possible to improve one objective without deteriorating another one. Despite the existence of multiple Pareto-optimal solutions, in practice, usually only one of these solutions is to be chosen. NEMO-II-Ch method takes into account the preferences of the DM in order to address the search of the optimization to the most interest region of the Pareto front.