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Decision science or decision-aid science?

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Abstract

The concepts, models and procedures used in Operational Research and Decision Aid (OR-DA), unlike their counterparts in the physical and natural sciences, can scarcely claim to describe realities which would be independent of the observer and which would exist independently of other human actors. We must admit that in most decision-making contexts, various participants in the process interact with reality “as much through the judgments they bring to bear as through their behavior” and contribute to creating what we would like to describe as an external object. Even in instances in which such interaction is virtually non-existent, the results or “truths” which the use of our concepts, models and procedures enables us to reach remain contingent upon numerous options (how a problem is formulated, the means by which uncertainty, imprecision and the ill-determination are taken into account, etc.), as well as upon one or more value systems. In order to give meaning to results produced in OR-DA, researchers have followed three main paths. Each of them may be, but does not necessarily have to be, associated with a particular quest: the path of realism and the quest for descriptions for discovering, the axiomatic path and the quest for norms for

prescribing and the constructivist path and the quest for working hypotheses for recommending. Each of these paths and quests are presented in turn and submitted to a critical examination. It emerges therefrom that a "decision science" (the precise meaning of this expression is specified) can only be rooted in the path of realism, which implies accepting postulates and hypotheses which have proved unusable in the practice of OR-DA. The article concludes by showing how by shifting the object of the quest for knowledge it nonetheless appears possible to speak in terms of a decision-aid science. However, within this framework, the validity and viability of the body of knowledge produced remain sources of further questions.



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Keywords

Decision theory; Modelling; Multi criteria analysis; Philosophy; Decision aid

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