

## **EDITORIAL - SPECIAL ISSUE**

### **Soft Systems Approaches to Information and Communication Technology Problems**

The field of Alternative Operations Research (OR) (as it is called sometimes in the USA) or Soft OR (as it is known in the United Kingdom) emerged through the last 25 years. It is associated with Problem Structuring Techniques and Soft Systems Thinking as well (see an excellent collection of papers on these topics in Rosenhead and Mingers, 2001 and the recent book by Jackson, 2003). The term Problem Structuring Techniques reflects the importance of finding out what the problem is before designing ways for a managerial intervention. Large scale complex societal problems like air pollution, development of public engineering infrastructure, regeneration of inner cities are some of the examples of instances when the deciding body has only a vague idea at the beginning about what the problem is. A systemic approach treating the problem situation from multiple perspectives is a potential guarantee for achieving a more comprehensive solution. Systems Thinking evolved over the last fifty years more towards addressing softer issues in management problems. A comprehensive review of the contemporary status of various systems approaches applicable to management can be found in Jackson (2003).

Why is it that we need to consider the application of soft or alternative OR to Information and Communication Technology (ICT) problems? The two primary reasons are that they help in handling complexity and that they contribute to the legitimacy of the proposed engineering solutions. Both issues are extremely relevant in the modern complex world, where we deal sometimes with many stakeholders, with diverse vested interests and values, different perceptions about what is acceptable and preferable to the users of engineering artifacts, considering a combination of quantitative and qualitative data.

The aim of this special issue is to provide a representation of current research applying various soft systems approaches (known also as Alternative Operations Research Approaches) to practical problems or theoretical issues in the ICT sector. The methods involve one or more of the following topics (the originators are in brackets), covered in Jackson (2003) and Rosenhead and Mingers (2001): soft systems methodology (by Checkland), SAST (by Mason and Mitroff), Interactive Planning (by Ackoff), Interactive Management (by Warfield), Strategic Choice (by Friend), Robustness Analysis (by Rosenberg), SODA (by Eden), Critical Systems Thinking (Jackson, Flood, Midgley, Mingers, Ulrich) and other related areas.

Complex “messy” problems are characterized by multiple stakeholders, by not having a clear beginning or an end, by involving soft and hard data and most importantly – the human element. They have been widely applied in organizational management and in Community Operations Research but not so often in resolving technical problems. This is one of the challenges to the field of Information and Telecommunications Technologies. The papers presented in this special issue can be placed in two groups – the first two are dealing with applications of concepts of soft OR to ICT problems while the other two are dealing more with theoretical issues.

The first paper by the American authors Patrick T. Hogan, Patrick V. Jaska, and M.K. Raja, titled Combining Soft Systems Methodology (SSM) Techniques and Data Envelopment Analysis (DEA) in an Exploratory Analysis of the Use of Technology Consultants for IS Implementation, shows how soft systems thinking can be used as a sense making tool of problem of modeling in the initial stage of the investigation which proceeds later on with the application of Data Envelopment Analysis.

The second paper by Martha Patricia López Garza and Agustín Delgado Fernández is titled Application Of A Systems Methodology In The Diagnosis Of The Organizational Culture In A Telecommunications Company. It presents an interesting application of Soft Systems Methodology to management problems in a Mexican technical environment.

The third paper is by Tage Frandberg from Sweden. It is titled Systems Thinking, A Studie of Alternatives of R Flood, M Jackson, W Ulrich and G Midgley and presents some unconventional and maybe controversial views of the author on some theoretical aspects of Critical Systems Thinking. In line with the wish of the author, we would like to invite any alternative opinions on the topics raised in his paper and we will publish them in a later issue.

Critical Systems Thinking emerged over the last 20 years initially overlapping with the emancipatory paradigm but more recently being associated with pluralist ideas on mixing methods (See Jackson, 2003). The last paper is from South Africa. Its title is Towards a Critical Systems Approach to Policy Formulation in Organizations and is authored by S. Luckett. It explores some theoretical issues in Critical Systems Thinking in view of its applicability to the formulation of policy in environmental management but the ideas are transferable to a degree also to other technical fields including the ICT sector.

We hope you will enjoy the diverse topics of the papers reflecting some of the theoretical considerations and the wide area of applications of Soft Systems approaches to management and technical issues, including those in the ICT sector.

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### **References**

Jackson, M. C. (2003) *Systems Thinking: Creative Holism for Managers*, Wiley, Chichester.

Rosenhead, J. and Mingers, J. (2001) *Rational Analysis for a problematic world revisited*, Wiley Chichester.