RESEARCH PROFILE
Dr Don Petkov
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My research has been predominantly in the area of applications of *multicriteria decision analysis (MCDA) and systems thinking to Information Systems (IS) management, software engineering and complex managerial problems*. However it has also branched in several other areas like software development productivity, telecommunications planning, web software development and testing, information systems education, some artificial intelligence methods like case based reasoning, genetic algorithms and neural networks. I have worked in the past also on application of systems thinking and MCDA to environmental and societal developmental problems.

In the area of ***software engineering***, my most important paper prior to 2000 is on a decision model with AHP for prioritizing the factors affecting software development productivity published in the Journal of Systems and Software, whose main ideas were suggested by me though my co-authors contributed with their knowledge of productivity issues in IS. Then I would mention my 2007 paper published in the Information Resources Management Journal (with K Sewchurran) on using Soft Systems Methodology and the Unified Modeling Language (UML) in a large IS design project and the conceptual paper on Software Engineering, Information Systems and The Systems Approach (co-authored with D Edgar-Nevill, R Madachy and R O'Connor) that is to appear in the first 2008 issue of the International Journal on Information Technologies and the Systems Approach.

In my work I have attempted to address also certain important ***theoretical issues in the theory of IS*** like validation of information systems, overcoming paradigm incommensurability in multimethod research , development of executive information systems and the role of the technology acceptance model. These are closely related to the evolution of my overall research agenda over the last 10 years from the area of MCDA to the new and evolving field of ***Problem Structuring Methods or Soft Systems Thinking, applied to Information Technology*** management and rural telecommunications development. The most significant are a pioneering paper in that area is my 2007 publication in Decision Support Systems, as well as the 2003 paper in Telecommunications Policy, co-authored with Theo Andrew among several other papers. Like my research in the IT area was helping me in staying current and relevant in my IS teaching, my work in ***environmental and developmental decision making*** informed my teaching of systems thinking at the School of Environment and Development and the Leadership Center of the University of Natal and in the masters in organizational management program at ECSU. This line of research merges with my IS efforts in my work on bringing together Community Informatics and Community Operations Research which is one of my recent contributions over the last years.

I have been interested for many years in **IS education, academic computing and academic management**. In particular I have published recently a paper on assessment in Jornal on Issues in Informing Science and Information Technology in 2006 and have another paper accepted for ISEDJ on the use of the Work System Method in an IS introductory course. A past paper of mine in the same journal reported on a case study on the evaluation of the introduction of WebCT at an university. I see that line of my research as an important element of all other efforts needed to improve the quality of teaching. I have been involved also in several smaller projects related to managerial problems in academia. Some of the research work that I have done was on technical aspects of software development. In particular interesting was my work on case based reasoning and neural networks.

My research reflects to a degree the diversity of the IS field as ***it spans technical and managerial aspects of Information Systems and Software Engineering***. On the theory side my efforts were coherently evolving from my early interest in MCDA and the Analytic Hierarchy Process to soft systems thinking (or alternative OR as it is also known). I have been trying to contribute in a humble way in the past decade towards bringing together MCDA and Systems Thinking and the development of several multimethodology frameworks for mixing methods in solving complex problems in the Information and Communications Technologies sector that have been applied in practice. The relevance of my work for this cutting edge research area has been reflected also in the special issues that I have edited on applying Soft Systems Thinking to technical problems and to Information Systems and my involvement in the editorial board of the most significant international journals in that area like IJITSA and Systems research and Behavioral Science. It has been recognized also through my nomination to serve on the program committees of more than 20 international conferences. Complete details are provided in my full CV.

My research has been reported in more than 92 refereed papers in journals, books or refereed conference proceedings and more than 100 other non-refereed papers and presentations. My papers have appeared in Decision Support Systems, The Journal of Systems and Software, Information Resources Management Journal, JITTA, The International Journal on Technology Management, International Journal on Information Technologies and The Systems Approach (IJITSA), The International Journal on Telecommunications Policy and Management, JITCAR and others. I am a member of IEEE Computer Society, Association of Information Systems, International Society for Multicriteria Decision Making, and previously was involved with DSI, INFORMS, ORSSA, CSSA, UK Systems Society.