

Editorial

This second issue of ORiON Volume 22 contains three interesting operational research papers that are very different in nature — one on a new volatility measurement capable of dealing with all the characteristics present in return data, one that employs non-Markovian approach involving stochastic Petri nets to study a particular queueing system and one which is philosophical in nature, asking the question whether operations research is really research.

In the first paper of this volume, titled *A realised volatility measurement using quadratic variation and dealing with microstructure effects*, Cornel du Toit and Willie Conradie address the challenge of finding a volatility measurement capable of dealing with the two main problematic characteristics of non-zero auto-correlations of lag at least one and of changes in the instantaneous volatility of high frequency return data. While some known volatility measures capture either one of these characteristics adequately, no previous measurement has been able to deal with both simultaneously. After deriving their new volatility measurement rigorously, the authors compare their measurement to previous measurements under various realistic situations by means of a number of numerical simulations. The authors conclude that, ultimately, a volatility measurement should lead to improved volatility forecasts in order to be considered superior to other measurements . . . hopefully this paper will be followed up by studies examining how well the raw measurement proposed here performs relative to other measurements in such a forecasting scenario, so as to deliver a final verdict on the effectiveness of the measure currently proposed.

The second paper, by Kasturi Ramanath and P Lakshmi titled *Modelling M/G/1 queueing systems with server vacations using stochastic Petri nets*, contains an alternative to the usual approach towards studying the steady state behaviour of an $M/G/1$ vacation queueing system with a limited service discipline, namely the non-Markovian use of Petri nets. The authors consider three types of server vacation schemes, namely (i) a *multiple vacations scheme* where the server goes on vacation either whenever there are no customers waiting in the queue or after completion of a fixed number of services, (ii) a *single vacation scheme* where the server goes on vacation either whenever there are no customers waiting in the queue (provided that at least one service has occurred) or after completion of a fixed number of services, and (iii) a *hybrid scheme* where the server goes on vacation upon completion of a fixed number of services. For each scheme the authors derive a number of useful performance measures, including the effective arrival rate of customers, the expected number of customers in the system, the expected waiting time of a customer in the system, the expected number of server vacations per unit time, and the fraction of time that the server is actually busy. The paper is concluded with a number of numerical examples illustrating the functionality of the authors' approach.

In the final paper, titled *Is operations research really research?*, Neil Manson takes a philosophical look at our discipline, asking the interesting question in the title of his paper. After putting forward answers to sticky questions, such as “What is research?” and “What is operations research?”, the author argues why it is important to have a clear definition of research. He then reviews the paradigm of *design research*, focussing mainly on the *information systems* expositions of Hevner *et al.* [1], March and Smith [2],

and Vaishnavi and Kuechler [3], defining what is meant by the notion of *design research* and comparing it with other research paradigms. The author concludes that the answer to the title question of the paper is a resounding “yes” when viewed in the context of design research. A description is given of seven guidelines for understanding and executing design research, namely an appraisal of the design research *artifact*, an evaluation of the *problem relevance*, an *evaluation* of the *design* process itself, an assessment of the *research contributions* made, an analysis of the *rigour* with which the research has been carried out, an appraisal of the degree to which the research may be seen as a *search process*, and the way in which the research is *communicated* to the relevant community. The paper is concluded with an interesting evaluation, using these seven guidelines, of three recent ORiON papers considered to be the products of design research.

As always, I am confident that the diversity and quality of the three papers in this issue are such that each reader of ORiON will find something suiting his/her particular tastes and interests. It so transpired that on this particular occasion a considerable number of manuscripts in their final stages of corrections were not in time for inclusion in this issue — hence the relatively small number of papers in this issue. However, the two issues of Volume 23 of ORiON promise to be bumper issues ...more than making up for the sparseness of this issue!

I would like to thank the five authors who contributed their interesting work to Volume 22(2) of ORiON — their support of ORiON is invaluable — the readership of ORiON are indeed encouraged to continue utilising ORiON as publication vehicle for their research. My sincere thanks also go to the six anonymous referees who generously gave of their time to evaluate the papers in this issue timeously and in a very professional manner. Finally, I would like to thank the business manager, Stephan Visagie, for his usual high standards typesetting the manuscripts in L^AT_EX and for overseeing the time-consuming publication process of this issue.

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