
Editorial

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Biographical notes: Kurt J. Engemann is the Director of the Center for Business Continuity and Risk Management and Professor of Information Systems and Business Analytics from the School of Business at the Iona College, USA. He is the Editor-in-Chief of the *International Journal of Business Continuity and Risk Management* and *International Journal of Technology, Policy and Management*. He has consulted professionally in the area of risk modelling for major organisations and has been instrumental in the development of comprehensive business continuity management programs. He has a PhD in Operations Research from the New York University and a Certified Business Continuity Professional.

Antonio Terceño is a Professor from the Department of Business Management at the Faculty of Business and Economics, University Rovira i Virgili, Spain. He obtained his PhD in Economics and Business from the University of Barcelona. He has published more than 150 papers in journals, books and conference proceedings including journals such as *Fuzzy Sets and System*, *European Journal of Operational Research*, *Journal of Risk and Insurance*, *Emerging Market Review*, *The International Journal of Uncertainty, Fuzziness and Knowledge-based Systems*, *Economic Computation and Economic Cybernetics Studies and Research* and *Computer Science and Information Systems*. He is currently the Dean of the Faculty of Business and Economics.

M. Glòria Barberà-Mariné is an Associate Professor from the Department of Business Management at the University Rovira i Virgili (URV), Spain. She was the Dean of the Faculty of Business and Economics of the URV, between 2007 and 2015. She obtained her PhD in Business Administration from the University Rovira i Virgili in 2001. She has published journals such as *Fuzzy Sets and Systems*, *Economic Computation and Economic Cybernetics Studies*

and Research, Computer Science and Information Systems, International Journal of Uncertainty, Fuzziness and Knowledge-based Systems, Fuzzy Economic Review, and in editorials in World Scientific, Kluwer and Springer.

The most salient feature of the late 20th century was the scale of changes affecting social, economic and corporate life. Our environment is changing at a rate which would once have been unthinkable, and the speed of events has now become astonishing. The problems posed by these new situations are increasingly complex and changeable and traditional models based on determinism and chance are no longer able to cope with this reality. Nowadays problems which affect people have appeared suggesting that the need to bring together all those individuals, companies and institutions which wish to collaborate in the development and promotion of new techniques to adapt to this context.

International Association for Fuzzy-Set Management and Economy (SIGEF) has been setup to encourage research about social issues as well as economy and corporate management problems within the above-mentioned context. In order to achieve this objective, we believe that it is essential to include all people who are concerned for the future of our societies, be they researchers or professionals, or organisations and institutions. The SIGEF founder members wish to approach this task in open-minded so that the exchange of knowledge or opinions benefit of all society.

For these reasons, SIGEF organise meetings, conferences, talks and similar activities allowing members to air their concerns, and to present ideas and work in progress. In July 2017, SIGEF organised the XIX Congress held at Iona College (New Rochelle, NY, USA) entitled 'Methods for the treatment of risk and uncertainty'. As a result of this congress some works were selected to publish in this special issue, 'Developments in risk management using fuzzy set techniques', of *IJBCRM*.

The six selected papers were improved and submitted for publication in the journal. The first two papers make proposals regarding soft graph colouring that allows a better allocation of scarce resources to actors in any distribution situation. With its proposal, it is possible to reduce the resilience that is the main soft graph colouring problem.

In the third paper, a solution of the problem of portfolio optimisation is suggested. This problem with multi-objective functions cannot be efficiently solved using exact techniques. Thus, it propose to use a heuristic method, specifically, a new variant of particle swarm optimisation named PSO-3P. Its application, according to the authors, allows obtaining a solution close to the optimum.

The fourth paper discusses the ranking of J.D. Power, which are the world's most used and recognised consumer reports focusing on automotive industry in the North American market, in comparison with the new index proposed, the safety recall index. It observes that the ranking are not highly correlated with the safety recall index and thus, it concludes that the created index provides additional, extensive and useful information for consumers to use when buying a car.

The fifth paper analyses risk management by comparing the classic statistical model (value-at-risk), with two new proposals, the VaR approximation through triangular fuzzy numbers (TFN) instead of stochastic variables and the aggregation of expert's judgement using the Delphi method. The main contribution of the paper is to show that expert's judgement is relevant to market risk management.

The sixth paper propose to measure the decent work deficit (personal integrity, family stability, social peace and economic growth, among others) in linguist form, establishing a system of objective and subjective indicators that allows an international measurement of decent work. Fuzzy approach to measure decent work allows capturing their different levels of deficit without losing information.

We would like to thank to all the authors, reviewers, plenary speakers, and the scientific and organising committee for their support and kind cooperation with XIX SIGEF Congress. Thanks to Professor Ronald R. Yager, president of the scientific committee, and to Professors Kurt J. Engemann, José M. Merigó and M. Teresa Sorrosal-Forradellas, chairs of the Congress.

Finally, we would like to express our gratitude for the support to the editors of the *International Journal of Business Continuity and Risk Management*.