Editorial

The aim of this thematic issue »Recent Advances in Systems, Decision Making, Business Intelligence and Learning« is to continue presenting the research achievement from the area of Systems Approach and Decision Support Systems for assessments of complex problems. The majority of the contributions were presented at the 23rd Conference on System Research, Informatics and Cybernetics, Baden-Baden, Germany, August 1-5, 2013, in the stream Simulation Based Decision Support, chaired by Miroljub Kljajić. The special issue includes papers dealing with the development of simulation methodology, modeling tools and practice for decision assessment, service systems, control and optimization and agriculture dynamics research. To address those issues above firm policies need to be established as a result of continues search for a sustainable future.

In that respect, the paper entitled »Weibull decision support systems in maintenance« addresses the Weibull distribution for the earliest decision support system for the assessment of a distribution for the parameters of the Weibull reliability model using expert information. The studies aimed to construct a distribution of the parameters of the Weibull reliability model and apply it in the domain of Maintenance Optimization. The parameters of the Weibull reliability model are considered as random variables and a distribution for the parameters is assessed using informed judgment in the form of reliability estimates from vendor information, engineering knowledge or experience in the field. The results are useful for the development of modern maintenance optimization models that can be embodied in decision support systems.

The paper »Fuzzy optimization for portfolio selection based on embedding theorem in fuzzy normed linear spaces« generalizes the results of embedding problem of fuzzy number space and its extension into a fuzzy Banach space. The main idea behind the approach consists of taking advantage of interplays between fuzzy normed spaces and normed spaces in a way to get an equivalent stochastic program. Inspired by this embedding theorem, the authors propose a solution concept of fuzzy optimization problem which is obtained by applying the embedding function to the original fuzzy optimization problem. The proposed method is used to extend the classical Mean-Variance portfolio selection model into Mean Variance-Skewness model in a fuzzy environment under the criteria on short and long term returns, liquidity and dividends. A fuzzy optimization problem can be transformed into a multiobjective optimization problem which can be solved by using an interactive fuzzy decision making procedure. Investor preferences determine the optimal multiobjective solution according to alternative scenarios.

The paper entitled »The development of sugar beet production and processing simulation model – a system dynamics approach to support decision-making processes« describes the system dynamics model for beet production development in order to support decision making. The sugar beet is the main field crop used for sugar production in the temperate climatic zone. The abolishment of the quota system will open new investment opportunities in countries that were forced to abandon sugar industry as the result of the reform in 2006. This paper describes the modeling of sugar beet production and its processing into sugar for the purpose of decision support. A system dynamics methodology was chosen to model impacts of regional sugar factory investment. The holistic model presents main feedback loops and dynamics of main elements in the case of regional investment into sugar industry. The factory model considered the specifics of the beet processing which is (a) limited period of beet processing and (b) initial adjustment to the production capacity at the start of the production season. The model seeks answers to strategic questions related to the whole sugar beet production and processing system and will be used for simulation of different scenarios for sugar production and their impact on economic and environmental parameters at an aggregate level.

The purpose of the paper entitled »Key Factors for Development of Export in Polish Food Sector« was an attempt to establish the current determinants for the possibility to increase the exports of the Polish food sector and to identify potential opportunities and potential threats in the future. It was also decided to give an answer to the question whether any of the group factors has a greater impact on the development of exports than the other, and which issues play only a minor role in the development of international exchange. The analysis used involved the review of the relevant literature and forming a group of expert to specify the key factor of success in the food sector export. Basing on the experts research the STEEPVL analysis was carried out. It turned out that apart from a number of organizational, financial and marketing factors the most important factors are: the level of the IT infrastructure and the fluctuation of the demand on the international markets for the goods offered by the sector.

The paper entitled »Extended Technology Acceptance Model for SPSS acceptance among Slovenian students of social sciences« has its aim in the development of a model for analysing the acceptance of the SPSS among university students of social sciences as one of the most widely used programs for statistical analysis in social sciences. The model is based on the widely known Technology Acceptance Model (TAM). The model

is tested using the web survey on the university students of social sciences from seven faculties at three Slovenian universities. The dependencies among the model components were studied and the significant dependencies were pointed out. The results of the empirical study prove that all external variables considered in the model are relevant, and directly influence both key components of the traditional TAM, »Perceived Usefulness« and »Perceived Ease of Use«. The obtained results are useful for educators, and can help them to improve the learning process.

The guest editors hope that our selected topics display the state-of-the-art of the research efforts over the world coping with complex problem solving in a holistic way which is characteristic for modern Systems Research and Cybernetics! Moreover, we are very thankful to our journal Organizacija (Organization - Journal of Management, Information Systems and Human Resources) for having given us the opportunity and honour of hosting this special issue as a scientific project and service to the people on earth. We express our gratitude to the Editors of Organizacija, and hope that our special issue will well-demonstrate Organizacija being a premium journal and of a great scientific and social value!

The Guest Editors:
Miroljub Kljajić,
Gerhard Wilhelm Weber