
Editorial

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Biographical notes: Ford Lumban Gaol received his BSc in Mathematics, Master of Computer Science and Doctoral in Computer Science from the University of Indonesia, Indonesia in 1997, 2001 and 2009, respectively. He is currently an Associate Professor Informatics Engineering and Information System, Bina Nusantara University (<http://www.binus.ac.id>). He is the Chair of PhD Programme and Research Interest Group Leader Advance System in Computational Intelligence and Knowledge Engineering (IntelSys) Bina Nusantara University. He is the Vice Chair of IEEE Indonesia section for international and professional activities. He is the Chair SERSC: Science and Engineering Research. Support Society Indonesia Section. He is involved with some projects related to technology alignment in some of multinational company like Astra, United Tractors, Telkom, and Sony Erickson. He is the recipient of IEEE Visiting Professor to Hong Kong University in 2011.

Industrial and system engineering is a domain that requires to stay on top of state of the art. Industrial engineers incorporate a variety and wide of knowledge as they absorb the systems to create the optimum versions that make the best use and effective of resources without affecting the quality service delivered or product created.

Three current trends in industrial and system engineering specialty include efficient energy consumption, eco-industry impact, and an automation system.

The paper 'Enhancement of the overall equipment effectiveness measure: a contribution for handling uncertainty in shop floor optimisation and production planning' presents reliability and effectiveness of the overall equipment effectiveness (OEE) measure through integration of uncertainty using for modelling the fuzzy set theory. The OEE usually is utilised in producing companies in two fields of application, at which the focus is set here. The first field is the so called OEE analysis at manufacturing processes on the shop floor. The second field of application is the corporate function of production planning, where the effective use of right and reliable OEE indicators is most crucial for deriving production plans and eventually corporate success. To give a recommendation how to handle inevitable uncertainties in the applications of the OEE, the fuzzy set theory will be transferred to these applications. Under consideration of an industrial case study the developed approaches are applied and discussed.

The paper 'Meta-analysis of the TQM impact on business performance amongst regions and countries' explores and reports the impact of TQM on business performance in different environment base on different type of country and the region. Meta-analysis has been conducted based on 20 previous works from 4,040 firms at 16 countries from Asia, Europe and the USA. Throughout this paper, the meta-analysis is applied to review the impact of TQM on business performance amongst the regions and countries.

The result of meta-analysis shows that the average of regression coefficient (rc) is 0.47; Asia ($rc = 0.54$), the USA ($rc = 0.43$) and Europe ($rc = 0.38$). Asia developed countries have the greatest impact of TQM towards business performance ($rc = 0.56$). ANOVA and t-test have been conducted to test the difference amongst type of country (developed and developing countries) and regions at $p = 0.05$. However, the result shows that there is no significant difference. In addition, rc^2 of each country have been calculated based on rc value and the average result of rc^2 is 0.24; Asia ($rc^2 = 0.33$), the USA ($rc^2 = 0.22$) and Europe ($rc^2 = 0.15$). Meanwhile, rc^2 in developing countries ($rc^2 = 0.28$) are higher than developed countries ($rc^2 = 0.21$).

The paper 'The multi-objective optimisation design for a light guide rod' discusses in depth the real-coded genetic algorithm (RGA) and grey relational analysis (GRA). The light guide rod (LGR) has been popularly used for the vehicles, and the automobile lamp industries need mass production to match this trend. This paper aims to develop a systemic way to find the best parameters' combination for the LGR, and the parameters are usually restricted to some levels and random values. In this paper, the LGR example with two optical performances of illuminance flux and uniformity is to be optimised by use of the RGA and GRA. The illuminance flux and uniformity of the best parameters' combination are obtained and compared with the initial set. Comparisons with Taguchi-Grey can improve 5% of gain and comparisons with Pareto genetic algorithm (PaGA) can improve 1.7% of gain. The combined multi-objective optimisation can saving 7% time and it is found that the new proposed method has positive gains in performances.

The paper 'Flood disaster water treatment solution from existing and common ideas with two versions of MSWT-01' explores flood disaster water treatment solution. With a lot of potential flood disaster places, Indonesia has clean water problems faced, especially in rainy season. To provide clean water, various solution programmes are initiated from time to time either by government, companies CSR, and people sporadical actions that had advantages and disadvantages respectively. One solution is easy to operate for instance, but did not provide adequate capacity whereas the other had ideal performance but more costly. Such situation was inspiring to develop a water treatment machine that could be an alternative favour. There are many methods could be chosen, referred to water source input condition and output result quality needed. Mobile surface water treatment (MSWT) is an idea for raw water in flood area, basically made for 1 m^3 per hour. Its design adopted from combined existing technologies and related literatures. Using common ideas, the highlight is how to string up such modular process put in a compact design elegantly and in light weight due to make easier in operational. Furthermore, this MSWT could be made with two possibilities of technology, physical only or combined with chemical method, and should be equipped with mobile feature regarding mobile purposes to reach disaster sub locations or sub sectors where it is needed. Through prototype level experiment trials, the machine is capable for producing clean water that suitable for sanitation and cooking/ drinking purposes although using contaminated water input source

We wish to thank all the authors for their great work and for considering the *International Journal of Industrial and Systems Engineering* for submitting their papers. Special thanks go to all reviewers who helped with the reviews of the papers and to Professor Angappa Gunasekaran for his excellent support and advice.

We hope that this special issue will represent a significant source of reference for future researches in the ubiquitous computing area.