Editorial

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Today's managers are dealing with many challenges. Companies strive to be agile in their approach to supply chain management and are continuously searching for ways to improve their operational excellence and ultimately their financial results. Typically, all the managers are expected to maximise the profitable operation of their manufacturing and supply chain, which requires the application of processes and tools.

However, optimisation is difficult, because of the diversity of industries, products, consumer's characteristics, etc. Especially, the external environment today has changed a lot, the traditional optimisation methods and theory may not applicable for the current manufacturing and supply chain management practices. Therefore, it is very important to reinvestigate the problems which is the main purpose of this special issue.

This special issue provides a compilation of the state of the art research contributions in the form of independent research papers addressing optimisation problems in manufacturing and supply chains.

In total, this special issue is composed of ten research papers. These study using various analytical methods, such as mathematical modelling, case study, simulation and the like to examine the optimisation problems in manufacturing and supply chains.

The contributions presented in this special issue provide ample discussions of the above perspectives.

Dounde et al. focused on the optimisation of shot peening process to improve the performance of components. By employing MADM techniques, this paper find the optimum settings of peening parameters, which are shot flow rate of 21 Amp and exposure time of 120 sec. This research provide a good insights for manufacturing process of shot peening.

The study conducted by Varatharajulu and the co-authors experimental investigated the optimisation problem in drilling industry. They identified the optimal input parameters of Duplex 2304 using evolutionary algorithm. In addition, contour graphs analysis, analysis of variance and regression were all employed in the optimisation process. The results showed that there is an optimisation condition and the methods are valid.

The paper from Tang et al. strived to predict the bottlenecks in manufacturing shops to reduce perplexity and improve optimisation. The authors firstly introduced the concept of independent bottleneck degree to describe the probability of a manufacturing cell becoming a system bottleneck. Based on this, they designed a closed-loop multi-bottleneck prediction method, which can effectively solve the responsibility cognisance problem resulting from correlation among manufacturing cells. This study will help to improve the accuracy of the bottleneck prediction and optimise the manufacturing facilities, which is important for manufacturing companies.

Sahu and Nayak proposed an artificial intelligent approach to model electric discharge machining (EDM) process, in view of the difficulties in simultaneous optimisation of the selected parameters. Firstly, the process modelling of MRR and TWR has been performed using artificial neural network (ANN), and then a GA based multi-objective algorithm (NSGA-II) has been implemented to find out the best trade-ups between the two conflicting response parameters MRR and TWR. The results showed that the optimal settings can be achieved.

Bai and Zhang extended the traditional quality cost model with learning curve and the basic ideas of 6σ management. The traditional quality cost theory indicated that cost will rapidly increase to infinite, if the quality defects approaching to zero. However, the reality does not support this argument. The extension will help to improve the theory and provide a better understanding about quality cost. This is very import for quality research in the future.

In the study of Kailash et al. a benchmarking framework was developed to optimise the existing internal supply chain process. The author collected data from various sources and conducted a comprehensive case study and the results showed the validity of the proposed framework.

The research of Bian et al. studied the inventory decision problem of power metering device under the condition of continuous production testing. The proposed model proved to be efficient to optimise the total cost of inventory in continuous production condition. This paper will contribute to the practices improvement of power grid enterprises.

Xu et al. targeted that the optimisation problem of dual supply chain of differentiated products which were sold through both direct and indirect online channels. Using consumer utility and game theory, the authors developed the online dual channel supply chain model and verified the validity of the model. This paper will provide much implications for companies which are considering dual channel online sales.

The study of Chen et al. investigated the bullwhip effect of a coal supply chain and tried to identify the factors that will lead to bullwhip effect. The author take Qinhuangdao port as an example, and the results showed that information sharing disorder, inefficient logistics operation, as well as the outdated traditional coal ordering system are the contributors to bullwhip effect.

The study by Bian et al. aimed at helping companies to select a good logistics corridor in complex networks. Network theory was adopted to develop the selection model and then a algorithm was proposed to solve the theoretical model. Based on the numerical experiment results, the authors conclude that managers can make a balance between operational factors and strategic factors to better solve the decision-making problem in logistics network development.