Editorial

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This special issue of the *IJRM* is focused on the optimisation of system efficiency and utilisation of resources in manufacturing and service systems. With this focus, both theoretical development and industrial applications related to revenue management are explored. Specific topics covered in this special issue of the *IJRM* include inventory control and strategic capacity planning in manufacturing systems, revenue maximisation of communication networks, online auction and generalised $M(k)/M/k$ queuing system.

The first article 'Multi-period multi-product inventory control with substitution and an exponential criterion' by X. Wang and Y. Xu studies a multi-period multi-product inventory control problem. In the problem, there are N inventory classes, in which the multiple inventory classes may be used as substitutes to satisfy the demand of a given reservation class (perhaps at a cost). The authors present a new model that combines inventory management with risk analysis instead of maximising the revenue expectation. The model uses the exponential utility function to reflect the manager's risk preference. The results show that accounting for risk consideration when setting overbooking levels has a small, but still significant, impact on revenues and costs.

The second article 'A study on the strategy of capacity planning for a TFT-LCD manufacturer by data envelopment analysis" by X. Huang and H. Li employs data envelopment analysis method to evaluate the efficiency performance of TFT-LCD manufacturing plants and the returns to scale conditions of the plants. Cluster analysis method is also applied to identify the direction for performance improvement. Based on the results of returns to scale for different plants obtained by DEA software, current production scale and operations location, some strategic insights into the intermediate term capacity planning are provided to assist the decision making for possible future adjustment in production capacity of the TFT-LCD manufacturer.

The third article 'Revenue maximisation in networks with capacity constraints" by J.Q. Hu, P. Vakili and C. Zhao investigates the revenue maximisation problem for a given network subject to various capacity constraints. Though the problem in general can be formulated as an integer linear programming (ILP) problem, it is computationally infeasible to solve the ILP problem for large networks. Several approximate methods are proposed in the article. The methods are mainly based on two steps. First, the authors rank the traffic demands in certain sequence based on their priority indices, and then route the demands one by one based on their order sequence subject to capacity constraints. Numerical results are provided to validate our methods.

The fourth article 'Optimal strategy models to maximise revenues in online auction with 'buy It now'' by J. Zhou, H. Lu and H. Yang explores the revenue maximisation in online auction. In the article, the fixed price and standard second-price English online

auction are combined together in the pricing format, which offers customers the option of ending an auction at the 'buy-it-now' (BIN) price. The decision problems of both customer (bidder) and seller are discussed. Especially, the response of the customers who are time sensitive in the BIN auction is focused. The decision model concerning those time-sensitive customers is given and the optimal strategy is proposed together with the indifference curve.

The fifth article 'Asymmetric pricing and change in delivery to increase multimedia messaging service revenue' by S.K. Samanta, J. Woods and M. Ghanbari indicates the current take-up of the multimedia messaging service (MMS) is far below that predicted when it was initially conceived. There are potentially a number of reasons, but most research has identified the high price. Factors such as asymmetric utility between sender and receiver, and uncertainty in the delivery of the MMS have not been considered. Based on real data from an Indian telecom operator, the authors develop a model to derive the subscription and usage elasticity and show that a trade-off between sending and receiving prices, and subsidised handsets can increase MMS subscription by 200% whilst simultaneously improving revenue by 50%.

The sixth article 'Optimisation of a generalised $M(k)/M/K$ queuing system' by T. Yang, W. Yue, J. Zhan and Q. Hu considers a generalised $M(k)/M/k$ queuing system where the arrival rate depends on the number of servers. There are holding cost reflecting the waiting cost of customers and service cost relating to operation of servers. The objective is to minimise the total systems cost in steady. The authors analyse the cost structure and show that the system holding cost is rapidly decreasing with the number of servers under some weak conditions. Based on these, a upper bound of the optimal number of servers is presented. Finally, numerical examples are given to illustrate the model and the results.