
Editorial

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Biographical notes: Farhad Nabhani is a Professor in Biomechanics and Manufacturing at the University of Teesside. His research interests include biomechanics, manufacturing systems and design process, ERP implementations, six sigma, benchmarking, materials process technology and lean manufacturing. His work has resulted in publications in many international journals and he is currently the course leader for several MSc courses at Teesside University.

In the manufacturing industry, the tracking of a product and its status through the processes of a company, from the moment it arrives until the time of despatch, can significantly reduce the lead time, increase the efficiency and visibility, increase the accuracy of production plans and also improve the efficiency of an ERP system. As the constant demand total visibility and fast and accurate information flow increases, the inefficiencies of traditional systems are becoming more apparent. The increased data capacity and flexible characteristics of Radio Frequency Identification (RFID) technologies have highlighted them as a potential answer for solving these problems and in turn have caused interest from world-class organisations in their aim to increase visibility. RFID technologies are expected to provide major savings for an organisation by providing the ability to identify individual items with ease and track them accurately throughout the supply chain, distinguishing their location and movements at all times. However, the substantial investment required for the implementation of an RFID system and the practical challenges and cultural resistance to change that may follow have caused controversy in the true value of the technology.

RFID has become such an attractive solution for many businesses to implement owing to a number of reasons, mainly based on the features of the technology allowing major business improvements. RFID technologies have the ability to identify an object without visual contact, which is a major drawback of conventional barcode systems. RFID tags also have a read/write capability, which allows data to be stored and then later changed as and when necessary and RFID also has the capability to simultaneously read many tags, which provides major time savings. Currently, the main areas of industry that are utilising RFID technologies are found to be transportation and distribution, manufacturing and processing and security and law enforcement.

In this Special Issue, there are six papers in total, with the first paper titled '*RFID opportunities within manufacturing SMEs*'. This paper aims to assess the feasibility of implementing RFID technologies with manufacturing SMEs and discuss the

barriers of implementing RFID technologies in small to medium sized companies. This study aims to assess the value of RFID in the SME manufacturing sector by conducting a cost benefit analysis to find its true value. The second paper within this Special Issue is titled '*Radio Frequency Identification (RFID) enabling lean manufacturing*'. This paper aims to assess the true value of RFID in providing data input into the Six Sigma and Lean applications of a company. The author uses a systematic approach to integrate the phases of business process reengineering, RFID decision making, prototyping and implementation.

The third paper is titled '*Web-DPP: towards job-shop machining process planning and monitoring*' and investigates Web-based distributed process planning systems (Web-DPP) for job-shop machining operations and execution monitoring. The approach examines a dispersed working group in a collaborative environment, allowing the team members to share real-time information through the Web-DPP. The paper presents both the system design specification and the latest development of the system. The fourth paper is titled '*Engineering management education for advanced manufacturing: a North American survey*'. This research investigates engineering management and its focus on making and implementing decisions and providing the operational leadership for current and emerging technologies. The paper presents results from an investigation of the engineering management programmes located in Canada, Mexico and the USA, and is the first such survey since 1990.

The fifth paper within this Special Issue is titled '*Systematic studies on fractal scan model for Flat Panel Display (FPD) controllers*' and presents the design and implementation of the fractal scan algorithm. This research aims to provide a new engineering way to solve a pressing problem of high-resolution flat panel display technology. The last Paper contained within this Special Issue is titled '*Model-based energy consumption optimisation in manufacturing system and machine control*'. The paper presents model-based energy consumption optimisation strategies that aim to take into account time, quality and cost whilst providing a reduction in energy consumed and peak power flattening. The author has focused the study on methods that optimise the controllable machine and plant parameters in a situation-oriented manner to maximise operational flexibility.

Although by no means the six papers in this Special Issue will give a complete summary of research around the world on manufacturing technologies and methodologies, it is my humble hope, as the Guest Editor, that these papers would shed some lights on the research in this field. Finally, I would personally like to thank Professor Lihui Wang, the Editor-in-Chief of the Journal, for his support and encouragement with this Special Issue, and I also wish to gratefully acknowledge all referees who have generously given their time to review the papers submitted to this Special Issue.