Editorial for the Special Issue:
Papers from the 19th International Conference on Production Research

This special issue contains six logistics orientated papers from the *19th International Conference on Production Research* (ICPR19), held inValparaiso, Chile between 29 July and 2 August 2007. Valparaiso is a UNESCO world heritage site as it has a unique urban architecture – the hillsides behind the port are covered in colourful houses precariously perched on steep cliffs. The Port of Valparaiso is the largest commercial seaport in Chile.

There were over 250 high-quality papers at this conference from 30 different countries covering all aspects of production; production techniques, production planning, logistics and supply chain management. Twenty-one papers were invited to this special issue; 15 papers were submitted. After two reviewing rounds, six papers remained. The first two of these papers are concerned with warehouse operations; the next two with supply management and the final two papers consider the dynamic behaviour of supply chains. Four of the six papers herein have explicit empirical input.

The paper by Bindi *et al*. considers the location of products in a warehouse to minimise picking distances. It is important to minimise this distance as picking is labour intensive and costs are largely driven by how far the labour has to travel. Thus co-locating items that are often picked together and locating high-volume items near loading bays improves efficiency.A new algorithm for clustering similar products in the correlated storage assignment problem is proposed, evaluated and applied to the design of a warehouse in Northern Italy.

Maknoon and Baptiste present a study on a cross-docking platform to facilitate the flow of products from one receiving door to one shipping door by improving the synchronisation of incoming and outgoing trailers. Two heuristic approaches are used to solve this problem. One of the heuristic approaches uses dynamic programming to solve part of the problem within a stochastic evolutionary algorithm. However, the other heuristic, based upon a greedy algorithm, is shown to produce the best results.

Ahtonen and Virolainen identify the most important elements of a supply/purchasing strategy in the Finnish food industry using theory based on transaction cost economics and the resource-based view. The findings indicate that the make or buy decision, core competency and capabilities, the supply base and its geography, collaboration with buyers and suppliers, and centralisation/decentralisation are the most important strategic elements that drive the purchasing arrangements with suppliers.

Fredriksson and Johansson consider an outsourcing framework, and specifically how to account for logistics activities. Their framework was derived from a literature study and then applied to three company cases. For each of these companies, their outsourcing process is described and analysed. Findings show that the three companies did consider logistics issues in their outsourcing process, but this was largely in a reactive mode. Furthermore, although the case companies did not explicitly formulate an outsourcing process themselves, they did broadly follow the proposed framework, thus validating the value of this device.

Hodgson and Warburton present an analytical treatment of the dynamics of continuous time supply chains. In particular, they are concerned with resonance phenomena in inventory at each echelon. They provide a criterion to determine when this resonance will occur. The replenishment delay at each echelon is, unusually for continuous time systems, assumed to be a pure time delay. Although this is arguably more realistic than the usual lag representation of the delay, it does somewhat complicate the mathematics involved. The authors overcome this with the innovative use of the Lambert W Function. The general length of the supply chain is captured by the use of a triangular matrix.

Childerhouse, Disney and Towill[1] present statistical results from 59 value streams to investigate the negative impacts of volatile customer demand on performance. The 59 samples were collected using the Quick Scan Audit Methodology. The samples were categorised into 'automotive' and 'non-automotive' industries. Results show that the best practice companies minimise schedule volatility and that schedule volatility is not sector specific. Those value streams that can master schedule volatility are able to operate with less inventory have stream-lined material flow and shorter lead-times and offer more product variety.

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Note 1. Professor Mohamed Naim (Cardiff University) managed the review process of this paper to avoid the obvious conflict of interest.