Managerial Insights on Supply Chain and Logistics Planning with Carbon Emission Consideration

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Abstract

Supply chain and logistics are among the leading sources of greenhouse emissions that contribute to environmental pollution and global warming. Some studies in this area present mathematical and metaheuristics techniques for modelling supply chain schemes with brief highlights on managerial insights toward the end of publications. Managerial insights often refer to as "so what" where the analysis of investigations should lead to useful understanding for decision making. Managerial insights provide opportunities related to the decision on future events based on sound analysis. There has been limited literature dedicated to the discussion on managerial insights. Since this is an important aspect in any scientific investigation, this presentation aims to revisit the importance of managerial insights for empirical studies on supply chain and logistics planning with carbon emission considerations. Three empirical studies were selected as reference cases: (i) just-in-time (JIT) distribution effects on the environment (carbon emission), (ii) supply chain planning with carbon policies, and (iii) closed-loop supply chain and recovery options. These cases were selected since they were published in reputable ISI journals where the current author is one of the authors for these publications. Modelling and solutions techniques used in these studies are briefly highlighted to provide the context and overview of case scenarios. The managerial insights on the just-in-time logistics approach with frequent transportation of small batch sizes with carbon emission consideration are deliberated. Sensitivity of varying supply chain and logistics parameters with respect to carbon policies are carefully treated to derive useful insights. Due to the importance of sustainability goal in the manufacturing industry, this presentation also provides managerial insights related to the closed-loop supply chain with recovery options. Sensitivity analyses are used to guide decision-makers to evaluate competing cost-benefits among investigated parameters. The importance of having credible test scenarios coupled with scientifically designed experiments cannot be underestimated to ensure the reliability and validity of the insights. Examples of experimental designs and their respective merits are explained. This presentation should promote a better understanding of the importance of managerial insights in performing empirical research on supply chain and logistics. The presentation ends with limitations of managerial insights and suggestions for further investigation.

Keywords
Managerial insights, Supply chain, Carbon emission, Just-in-time, Recovery options.

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Biography

Adnan Hassan earned the B.Sc (Hons: Cum Laude) in Industrial Engineering from the University of Miami, FL, USA, the M.Sc. degree in Industrial Measurement Systems from Brunel University London, U.K. and the Ph.D degree from Universiti Teknologi Malaysia (UTM), Malaysia. From 2006 to 2009, he was the Head of Manufacturing and Industrial Engineering Department at UTM and from 2009 to 2011 he was the Chairman of Industrial Engineering Department, King Abdul Aziz University, Rabigh, Saudi Arabia. Currently, he is an Associate Professor at the School

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