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## Editorial

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**Biographical notes:** Xianbing Liu is a Senior Policy Researcher at Kansai Research Centre, Institute for Global Environmental Strategies (IGES) of Japan. His research focuses on the analysis of policies and strategies enhancing the environmental management, energy efficiency and carbon performance of the businesses in major Asian economies. He has many publications in international journals, e.g., *Energy Policy*, *Energy Economics*, *Applied Energy*, *Energy for Sustainable Development*, *Journal of Environmental Management*, *Journal of Cleaner Production* and so on.

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The need for sustainable development came as a response to the growing concern about how the economic growth is associated with environmental damages. The triple bottom line concept addresses the importance of integrating social and economic dimensions with environmental considerations for achieving sustainable development. More recently, a more consistent analytical breakdown was suggested for sustainable development to distinguish four domains in economic, ecological, political and cultural sustainability. Although the concept of sustainable development has been widely accepted as a common vision, there is little guidance about its practice in reality.

Actually, discussions of sustainable development occur not only among the governments, academics and NGOs, but also in the industry. By the mid of this century, the global industrial system will double its output while only using half of current resources and generating one fifth of present emissions of greenhouse gases. This implies a new industrial revolution, requiring new approaches which may be collectively termed as industrial sustainability. Industrial sustainability now appears to be moving up the management agenda in lots of organisations. Whereas, many challenges for academics and practitioners are still to be solved.

Driven by the increasing environmental consciousness of the public and regulatory initiatives of the governments, many companies recognise the sustainability imperative to be critical for their long-term survival and business success. The most common approach to deal with industrial sustainability is the so-called 'low-hanging fruit' strategy, i.e., the practices that also reduce costs and/or improve operation efficiency. Recent evidence shows some truth that the 'low-hanging fruit' approach has eventually reached its limit. It is the time for companies to engage in the development of new products, processes and business models. Innovative applications of management science will play a crucial role in dealing with this emerging challenge in industrial sustainability.

Aiming to provide a forum for promoting the exchange of ideas and experiences as well as fostering collaborations, the call for papers for this special issue invited

submissions on a broad range of topics, with an emphasis on proactive practices of corporate environmental management, i.e., eco-design and green supply chain management, and the cases of applying management science for industrial sustainability. The special issue expects to bring together the researchers and practitioners in the field of industrial sustainability to attain synergy between the needs, methodology developments and empirical analyses.

This special issue includes five articles. Among which, three papers are selected from those submissions in response to the call for papers of this special issue. Another two papers are the regular submissions accepted by the journal. Each of them contributes in a different way to the understanding of theory and practices of industrial sustainability and operation management.

In response to the need for tools to facilitate companies to integrate sustainability into the development of product-service system (PSS) as an innovative business model, Yang et al. (2015) present a sustainable value analysis tool (SVAT) and provide empirical evidences for the application of the tool. They theoretically propose the combination of three key factors, including life cycle thinking, sustainable value and analysis of multiple values, which may support the combination of sustainability into PSS development. In practice, SVAT is built upon a multi-disciplinary literature analysis and qualitative data from semi-structured interviews and workshops in several companies. The need for the development of a simple and applicable tool is confirmed through the tool use in the companies.

Chowdary and Phillips (2015) examine the validity of computer aided design (CAD) and design for environment (DFE) as the principle for enabling the conventional product design process. The efficacy of the proposed approach is demonstrated through a case study involving the development of a tennis ball retriever. This research can be referred for the development of similar product at the initial stages in terms of the approach to identify the design errors and make corresponding modifications.

Eryürük et al. (2015) explains the influence of regulations and policies on strategic decisions of industries. They establish a generic decision making strategy to define scenario generation mechanism using the structure of unified matrix for interactive impacts, which may define the relations between criteria and functions of closed-loop supply chain. This matrix has advantages in flexibility and easiness for understanding. The authors admit the need for further study on the development of connections between the decision matrix results and the network design creation.

The two regular papers are written by the same authors. Singh and Ahuja (2015a) focus on the modelling of a fuzzy-based simulation for finding the significance of performance measures of just-in-time (JIT) considering the percentages of JIT implementation and gain in performance measures due to the JIT implementation as parameters. It presents a new approach applying fuzzy-based manufacturing system (FBMS) and fuzzy logic tool is suited for dynamic environment where decisions are made on the basis of multivariable parameters. Meanwhile, Singh and Ahuja (2015b) gauge the critical factors for JIT to determine the strategic success factors in uncertain environment using analytical hierarchy process (AHP). The outcome criteria include success rate of JIT as a whole as well as that of each input attribute. The research results are applicable to the manufacturing organisations, particularly for those in India.

Overall, this special issue gathers the papers on how to apply the management tools and modelling approaches for the improvement of operation efficiency and the realisation of business sustainability. As the guest editor, I would like to thank all the experts who submitted their papers to the special issue. The patience of authors is highly appreciated, in particular those whose papers could not be included in this special issue. I also want to acknowledge many scholars who volunteered to review the manuscripts as the reviewing is a time and energy-consuming task.

I hope you enjoy the reading of this special issue.