
Editorial

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Biographical notes: Mohd Fadzli Bin Abdollah is an Associate Professor from the Faculty of Mechanical Engineering at the Universiti Teknikal Malaysia Melaka (UTeM). He received his BEng (Hons.) and MEng in Mechanical Engineering from the Universiti Kebangsaan Malaysia in 2004 and 2005, respectively. Later in 2011, he completed his DrEng in Mechanical Science and Engineering from the Nagoya University, Japan. His current interests involve tribology of eco-materials and surface engineering. In conjecture, he is one of the key pioneers in developing the Green Tribology and Engine Performance (G-TriboE) group at the UTeM. He has served the tribology community in various capacities including, Editor-in-Chief for *Jurnal Tribologi* and appointed as Guest Editor for several journals, including *Industrial Lubrication and Tribology*, *Journal of Materials Research*, *Transactions of the IMF*, *Tribology – Materials, Surfaces & Interfaces*, *Composite Interfaces*, *International Journal of Materials and Product Technology*, *World Review of Science, Technology and Sustainable Development*, and *Progress in Industrial Ecology*.

Industry 4.0 (IR4.0) is a term often used to refer to the developmental process in the management of manufacturing and chain production. The term also refers to the fourth industrial revolution.

The IR4.0 takes the automation of manufacturing processes to a new level by introducing customised and flexible mass production technologies. This means that machines will operate independently or cooperate with humans in creating a customer-oriented production field that constantly works on maintaining itself. The machine rather becomes an independent entity that can collect data, analyse it, and advise upon it.

The IR4.0 is marked by emerging technology breakthroughs in a number of fields, including robotics, artificial intelligence, nanotechnology, quantum computing, biotechnology, the internet of things, 3D printing and autonomous vehicles. Thus, the synergistic approach between these fields is essential for product technology development. This will improve a system for scheduling the manufacture of products and managing stock inventory that aims to optimise costs, minimise inventory and maintain a steady work flow.

The papers included in this special issue will discuss about analysis, design advances, and new materials concerning all kinds of synergistic approach in IR4.0 for product technology development from fundamental research to applied uses, with the resulting benefits of longer product/component life, less energy consumption, and reduction in product development time and cost.

As a guest editor, I hope that the papers in this special issue will serve as a valuable reference for researchers and tribologists around the globe. I am also grateful to the Chief Editor of the *International Journal of Materials and Product Technology* and reviewers who worked very hard in reviewing papers and providing feedback for authors.