Trends in Manufacturing and Challenges for Industrial Engineering

KZ Kaylani and N Nagarur

Systems Science and Industrial Engineering, Binghamton University

Corresponding author's Email: Khaldoon@e-incube.ca; nnagarur@binghamton.edu

Author Note: Khalddon Zaid Kaylani is at present pursuing his doctoral degree in the Department of Systems Science and Industrial Engineering, Binghamton University. He holds a bachelor degree in industrial engineering and an MBA. He founded an IT company in 2004, which currently has six branches worldwide. Nagen Nagarur is a professor of Systems Science and Industrial Engineering in the Department of Systems Science and Industrial Engineering, Binghamton University. His research interests include supply chains, operations management, and healthcare delivery.

Abstract: The purpose of this paper is to study how manufacturers are adapting new technologies like 3D printing, internet of things (IoT), industrial automation, artificial intelligence, manufacturing systems and processes, mobile technologies, driverless vehicles and renewable energy, to compete better or to survive. In addition, the paper will discuss the adaptations and how they are changing the age-long Industrial Engineering concepts and practices. The paper will start with a review of new technologies, and then the research would discuss methods of selection, advantages and disadvantages, challenges and results of implementing such technologies in manufacturing. The findings of this paper show that new technologies have affected the known industrial engineering practices in many ways and these changes have affected core areas in industrial engineering.

Keywords: Manufacturing, Automation, Mobile technologies, Artificial intelligence, AGV, IoT