The Future of Civil Aviation Industry: Technology Management

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Abstract

The aviation industry has established itself to be a driving force behind global advances in technology and innovation, enabling lighter, quieter, and more efficient engine and aircraft designs. However, the industry is set to witness a paradigm shift by emerging technologies of the future, the likes of robotics, unmanned aerial systems, internet of things, artificial intelligence, with the demand for hybrid and electric aircraft as the industry's response to the climate crisis. The information for this research was found using multiple search engines and was gathered by reviewing scientific publications, and publication reports from government and professional organizations reporting original work in the field of commercial aviation. The selection criteria were to review these publications and provide relevant information based on industry trends. This paper discusses the disruptive technologies of the Fourth Industrial Revolution that will impact the civil aviation industry in the not-too-distant future and the role of technology management in enabling organizations to manage their technological capabilities for sustainable competitive advantage. The paper also explores the possible dangers of over dependence on technology, although technology itself has a lot of positive outlooks in terms of simplifying life, yet it comes with multiple drawbacks.

Keywords
Strategic Change, Aviation 4.0, Disruptive Technologies, Technology Management, Digital Technologies.

Biographies
Daniel Nnaemeka Otuokwu is currently a master's student in the Graduate School of Technology Management, University of Pretoria, South Africa. He obtained a bachelor's degree in Mechanical Engineering from Anambra State University. With over 7 years in both public and private sectors, Daniel has experience in project management, research analysis, technology strategy, professional development, and communications. Daniel was the team administrator for the NUTA_BOLTS team of Anambra State University, the first ever Nigerian team to represent the nation in one of the largest engineering design competitions in the world, Formula Student UK 2012. In addition, his team also won the first ever World Population Challenge Competition in the world, organized by The Institution of Mechanical Engineers in the UK. He holds membership with the Institution of Mechanical Engineers IMechE, UK as an associate member, the International Association of Engineers IAEng, International Society for Professional Innovation Management to mention but a few. Daniel has won many awards and accolades through participating in competitions in time past. He is currently a Mastercard Scholar at the University of Pretoria. His research interest includes technology strategy, innovation management, project management, project planning, systems/design thinking, technology management, data analysis, and aviation management.

Hilda Kundai Chikwanda is an Associate Professor in the Department of Engineering and Technology Management at the Graduate School of Technology Management (GSTM) in the Faculty of Engineering Built Environment and Information Technology (EBIT) at the University of Pretoria. Her teaching and research areas are in operations management.