Preface

In recent years, the sustainable manufacturing operations have invited significant attention from academia and practitioners. Sustainable manufacturing is a strategy for the development of new products. It is defined by the U.S. Department of Commerce (2007) as “the creation of manufactured products that use processes that minimize negative environmental impacts, conserve energy and natural resources, are safe for employees, communities, and consumers and are economically sound.” The integration of environmental requirements throughout the entire lifetime of products needs a new way of thinking and new decision tools need to be applied (Kaebernick et al. 2003; Jovane et al. 2008; Garetti and Taisch, 2012). Thus sustainable manufacturing involves green product design, green procurement, green technology and green production (e.g. Noci, 1997; Azzone and Noci, 1998; Gunasekaran and Spalanzani, 2012).

The manufacturing practices has evolved in last 2 decades from traditional manufacturing, which was revolving around cost, quality, delivery and flexibility (Sanchez and Perez, 2001) to sustainable manufacturing which aims at achieving a balance between environmental, social and economic dimensions to satisfy stakeholders (Flammer, 2013) and to achieve a competitive advantage (Rusinko, 2007; Carter and Rogers, 2008; Kannegiesser and Gunther, 2014). Molamohamadi and Ismail (2013) have argued that technology, education, ethnic background and accountability are the key enablers of sustainable manufacturing. Prabhu and his coauthors (Prabhu et al., 2012) have argued that the minimization of energy consumption and waste produced are two key aspects of sustainable manufacturing. Gunasekaran and his coauthors (Gunasekaran et al., 2013) have argued that operational strategies, tactics & techniques and operational policies are the foundation of sustainable manufacturing. Garbie (2013, 2014) has further argued that to implement sustainable manufacturing, an organization needs to focus on key enablers like international issues, contemporary issues, innovative products, reconfigurable manufacturing systems, complexity analysis, lean production, agile manufacturing, performance measurement and flexible organization. Dubey and his coauthors (Dubey et al., 2015) have further attempted to take the sustainable manufacturing practices to a world-class sustainable manufacturing level. The pillars identified are: leadership, regulatory pressures, supplier relationship management, employee involvement, reconfigurable manufacturing systems, lean production, and agile manufacturing. Sustainable manufacturing has attracted a lot of attention academia and practitioners in recent years. Dubey et al. (2015) have further attempted to explain sustainable manufacturing using a big data concept.

Thus, the existing literature has discussed sustainable manufacturing (e.g. Garbie, 2013, 2014) and sustainable practices such as waste minimization and energy efficiency through monitoring or technology (Despeisse et al., 2013). Garetti and Taisch (2012), in their review of sustainable manufacturing, highlighting the role of data and BDA suggesting that there is a need for methods that will be able to process large amounts of data related to its environmental, social, and economic implications.
In response to pressing need of the time, we have come out with this edited book of research on the strategic management of sustainable manufacturing operations. This edited book has 15 chapters, contributed by worldwide researchers and practitioners, of the sustainable operations field intended to advance the theories and practices of sustainable manufacturing operations.

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REFERENCES


