

Exploring a Causal Loop Relationship between Lean Six Sigma and Industry 4.0 Readiness: A Systematic Literature Review

Totok Kurniawan^a, Yuanita Handayati^b, Gatot Yudoko^c

^{abc}Bandung Institute of Technology, Bandung, Indonesia

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ABSTRACT

Industry 4.0, for the first time, were published by the Germany government at the 2011 Hannover Fair as part of its “High-Tech Strategy 2020 Action Plan” (Kagermann et al., 2013), with the support of rapid technological advances, will bring us to a transitional state of the technological revolution that will fundamentally change the way of life, work, and organizational relationships in dealing with one another (Klaus Schwab, 2016). Lean and Six Sigma are two of manufacturing tools that is used to improve manufacturing performance. Lean Manufacturing is known as “Toyota Way of Production” is developed by Toyota Motor Corporation, as the term of lean, it’s derived from containing little or no fat (Merriam Webster, 2006). Meaning that, lean principle is a systematic approach that focus on identifying and reducing the waste or unnecessary excess as the core of continuous improvement (Junior, Olivera and Thadani, 2018). Whether Lean manufacturing focus on efficient production, Six Sigma focus on effective production. Six Sigma derived from statistics, using Greek symbol sigma which represent the standard deviation, from 0 to 6, where the smallest value means the highest deviation (Michael Brassard, Finn, Ginn, & Ritter, 2002).

Keywords: Lean, Six Sigma, Industry 4.0, Maturity model, Manufacturing