8th International Conference of Multidisciplinary Approaches (iCMA), 2021
Faculty of Graduate Studies,
University of Sri Jayewardenepura,
Sri Lanka.
ISSN: 2386 – 1509

EXPLORING LEAN CONSTRUCTION AS AN INNOVATION FOR CONSTRUCTION INDUSTRY RESILIENCE

Hirusheekesan S. and Satanarachchi N.N.*

Department of Civil Engineering, Faculty of Engineering,
University of Sri Jayewardenepura, Sri Lanka
niranji@sjp.ac.lk

Abstract

Construction Industry is often accompanied with unsustainability due to various reasons including slow adaptability to innovations. This aggravates during crises such as the current pandemic, questioning the resilience of the industry in the face of uncertainty. Compared to construction sector, production sector seems to be showing more resilience to crises suggesting that Construction Industry has the room to learn from the Production Sector and can adapt and emulate strategies and models. Further, a narrow, product and process focused definition of innovation alone is not sufficient to understand the needed responses to an economic crisis, therefore, a multi-disciplinary viewpoint is necessary. "Lean Construction" is a project management method, inspired by a set of production processes which primarily focus on minimizing wastage while maximizing the value of projects. However there is a misalignment of Lean concepts and techniques with traditional conducts in the industry in many places, and the viability of Lean Construction as an innovation that make construction firms resilient for crisis are less explored. Having such a backdrop, the current study intends to critically assess how Lean Construction could be considered as an innovation that drives resilience in the construction industry. For this purpose, several lean tools such as 5S, Kanban, Just-In-Time, *Jidoka* (Automation), Line Balancing etc. were mapped to a set of selected indicators of innovations i.e. Novelty, New value for stakeholders, Improving the current state and Driving economic growth and those of Resilience i.e. Resistance, Recovery, Renewal and Reorientation. The study suggests that while there are some lean tools that create innovation while highly increasing the resilience, some tools display only moderate characteristics of innovation while increasing the resilience. In addition, the study discusses that certain tools may neither be considered as innovation leading nor as increasing the resilience of the construction industry.

Keywords: *Resilience, Innovation, Lean Construction*