

# **Empowering supply chain through discrete-event and agent-based simulation – A systematic review and bibliometric analysis**

*Abideen, Ahmed Zainul; Binti Mohamad, Fazeeda*

<sup>a</sup> University Malaysia Pahang, Faculty of Industrial Management, Gambang, Malaysia

## **ABSTRACT**

Multiple strategies and theories have been formulated to improve supply chain and its constructs. Simulation and simulation related tools and techniques have recently been adopted widely to assess the future states of supply chain process designs. Among simulation techniques that are used to analyze discrete processes and any other individual entity's behavior in a system, Discrete Event Simulation (DES), Agent-Based Simulation (ABS) are seen adopted frequently. This study has tabulated and systematized the researches on designing and improving the supply chain through the DES and ABS approach over the past 15 years (2005 - 2019). An integrated approach of a systematic review and bibliometric analysis of the Scopus database has been adopted to systematize the literature on this topic and also find out possible gaps and scope for future contribution to the body of literature. Around 120 research articles were finally obtained by strictly adhering to the keywords search under the subject area (Engineering). Scope for future studies has also been discussed at the end of the paper. The implications after integrating the systematic and bibliometric review bring forth numerous research gaps and scope for future directions. Authors suggest still other databases and search strategies could bring even more insights in the area of simulation and its application in the supply chain domain. The multi-method simulation approach is the current trend of the hour which has the capability to tackle any hybrid problem.

## **KEYWORDS**

Agent-based simulation; Bibliometric analysis; Discrete-event simulation; Supply chain; Supply chain simulation; Systematic review

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