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**Impact of AI innovation on evolving business operations during COVID-19**

Abstract

Artificial intelligence (AI) has redefined how business operates. It uses the power of data to introduce new ways of decision making while effectively managing business environments. Recent empirical studies have indicated that COVID-19 has drastically changed business environments which has created both opportunities and challenges for use of AI in managing business operations. This indication raises question of impact of AI innovation including Machine Learning (ML) models on changing business environments and operations during COVID-19.

This study uses an evaluative literature review aided by NVIVO software to answer this question. Abstracts of 215 articles were reviewed through Elsevier's abstract and citation database: Scopus, including 123 journal papers, 44 conference papers, 38 review papers, 10 book chapters and 2 notes.

56% of the reviewed articles suggested that AI and ML models have been deployed in addressing clinical challenges posed by COVID-19 ranging from predictive capability in scaling dynamics and sensitivity of the outbreak, determination of protein interactions of mutant COVID-19 variant, to ML-based analysis of association between severity of COVD-19 and presence of certain chronic conditions. Whilst 18% of the articles noted that, during COVID-19, AI has been deployed to enhance supply chain operations with most of the articles indicated that AI/ML models deployment improve logistics performance in healthcare industry, the remaining 26% of the articles reveal that AI has disproportionate impact across other business and social environments including sustainability, tourism, education, government and race.

Although there is evidence that AI/ML models can contribute towards treatment decisions and improve effective business operations during COVID-19, there is concerns of rapid dissemination of underdeveloped and potentially biased AI/ML models, which worsens the health disparities gaps and presents a disproportionate impact on minorities in terms of COVID-19 infection rate, cases, and mortality.

However, although some of articles indicated that COVID-19 has not as led to the increased use of AI/ML models across businesses, most of the articles suggest that organisations are at early stages of adoption with larger firms are more AI/ML ready than smaller firm. This shows that there are gaps of expected AI/ML impact and size of investment across businesses and industry sectors. Hence, further research needs to explore ways for business managers and data practitioners to develop AI/ML models that address raised challenges and creates more opportunities for AI adoption in government agencies, corporations, scientific community and public services.