

Exploring Barriers to Mitigate Disruptions in Sustainable Supply Chain of Pharmaceutical Industry During COVID-19

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Abstract

The pandemic, COVID 19, has affected global economy severely which caused an outbreak of crisis in all sectors of business. Firms are struggling to keep up with the normal functions in different stages of supply chain which brought sustainability under a big risk. Concerned by the COVID-19 outbreak, the main aim of this paper is to determine the threatening barriers to supply chain sustainability in the pharmaceutical industry of the South Asian region. This industry is one of the most pivotal and developing sectors in the south Asian region with respect to other industries in this region. Although economic growth is noticeable in this sector, many questions are arising about its sustainability and resilience in a true sense amidst the global pandemic. To establish the sustainability of this sector under a pandemic scenario, the major barriers in terms of social, economic, and environmental perspectives have been identified and analysed in this research. Twenty crucial constraints have been identified and classified in five categories through an extensive study of literature and opinion of industry expert. This paper uses, Interpretive Structural Modelling (ISM) approach to develop the hierarchical structure and connection between these obstacles. ISM presents the interdependency of the driving and driven power of these barriers. Another modernistic approach, Matrix of Cross-Impact Multiplications Applied to Classification (MICMAC), has been used to recognize the barriers as driving factors, dependent variables, and link variables using. The modelling of this study provides companies insight into obstacles and the efficient and effective management of their resources while making their supply chains sustainable. The study closes by discussing findings and future area of the research.

Keywords (12 font)

COVID-19, Supply Chain, Sustainability, Supply Chain Barriers, MICMAC

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Biography / Biographies

Prof Dr. Mohammad Sarwar Morshed is currently the head of the Department of Mechanical and Production Engineering at Ahsanullah University of Science and Technology. To utilize the field of Industrial Engineering (IE) and Operations Management (OM) by providing means to communicate and network among diversified people, 'IEOM Society AUST Student chapter' was established in 2015, under the direction of Professor Dr. Mohammad Sarwar Morshed sir who led a prestigious position (Chairman) of IEOM Society, Bangladesh. He is skilled and wise in Optimization, Operations Management, Logistics, Simulation, Computational Intelligence, Production Planning, Production/Operations Management, Mathematical Programming, Scheduling, Combinatorial Optimization, Multiobjective Optimization, Genetic Algorithm, Evolutionary Computation Integer Programming, Radiotherapy,

Discrete Optimization Evolutionary, Algorithms Model Development, Fuzzy Theory, Global Optimization, Scheduling Theory, Optimization, Metaheuristic, Simulated Annealing, System Optimization, DSS, TSP.

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Shah Murtoza Morshed, M.A.Tanvir Bhuiyan, Md. Abdur Rahim are students of industrial and production engineering under the department of Mechanical and production engineering at Ahsanullah University of Science and Technology, Dhaka, Bangladesh. They are enthusiastic about learning and working with the supply chain management, industry 4.0, six sigma, solid works, lean manufacturing, Total Quality Management, product lifecycle management, process management, project management, production planning and control, operation research, data science, artificial intelligence, artificial neural networking, intermediate python, any logic, Minitab, PLS, MATLAB, and blockchain. Currently, they are working on work on optimization supply chain sustainability, data science, machine learning, and advanced excel work.