ABSTRACT

Industry 4.0 refers to a new phase in the Industrial Revolution that focuses heavily on interconnectivity, automation, machine learning, and real-time data collection. Industry 4.0 help improve conditions and safety of the worker by using smart machines. It increases the production rate through smart technologies, advanced robotics and cloud computing. It combines physical and digital technologies like analytics, robotics, additive manufacturing, artificial intelligence, advanced materials, natural language processing, high-performance computing, cognitive technologies and argument reality. Industry 4.0 in manufacturing industry achieve the flexibility and customization of production. The aim of study is to analyze the readiness of industry 4.0 with readiness factors and performance metrics. The objective of this study is to assess the manufacturing firm readiness regarding Industry 4.0 implementation be measured based on prioritising readiness factors. The readiness factors are parameters utilised to assess the industry 4.0 implementation and performance metrics are parameters having impact on Readiness factors in implementation of industry 4.0.The considered readiness factors are Augmented and Virtual Reality, Additive manufacturing, Horizontal and vertical integration, Internet of things, Stakeholder support, Multilevel customer interaction and customer profiling, Financial Robustness, Employee compatibility, Agility and flexibility, Technology compatibility, Top management commitment, Global Networking, Sustainability, Legal and industrial regulatory norms and compliances, Organisational And corporate culture, Customisation, Corporate Venturing, Societal pressure, collaborative Networking and Modularity. The considered performance metrics are Connectivity, IT support, Real time capability, Interoperability, Decentralised potential, Visibility, Adaptability and Resource efficiency. The fuzzy MCDM methodology is developed to assess the readiness assessment. The fuzzy DEMETAL is MCDM approach utilised to calculate the criteria weights and Fuzzy CODAS is based on relative distance is employed to

rank the attributes. Based on the ranking of the attributes the readiness factors are prioritized for the Industry 4.0 implementation. This study guides the practitioner and academic to Implement the Industry 4.0 Implementation.

Keywords:

Industry 4.0, Readiness assessment, digital manufacturing, Industry 4.0 implementation, Industry 4.0 technologies, Fuzzy CODAS, Fuzzy DEMETAL, Readiness Factor