Industry 4.0

Juhi Liladhar Dawale[1], Rajat Rajesh Singh[2], Chinmay Rajesh Ghodke[3],
Keya Shailendra Gawai[4], Radhika Abhay Gimonkar[5], Jagruti Kiran Pawar[6]

Third Year Electrical Engineering, Jawaharlal Darda Institute of Engineering and Technology Yavatmal, India[12456]

MCA Second Year, PG Department of computer Science SNDT Women's University Mumbai, India[3]

juhi.dawale@gmail.com[1], rajat.rajesh.singh@gmail.com[2], chinmayghodke4@gmail.com[3]

keyagawai9@gmail.com[4], radhikagimonkar235@gmail.com[5], jagrutipawar@gmail.com[6]

Abstract*: Industry 4.0 is considered a new industrial stage in which vertical and horizontal manufacturing processes integration and product connectivity can help companies to achieve higher industrial performance. However, little is known about how industries see the potential contribution of the Industry 4.0 related technologies for industrial performance, especially in emerging countries. Based on the use of secondary data from a large-scale survey of 27 industrial sectors representing 2,225 companies of the Brazilian industry, we studied how the adoption of different Industry 4.0 technologies is associated with expected benefits for product, operations and side-effects aspects. Using regression analysis, we show that some of the Industry 4.0 technologies are seen as promising for industrial performance while some of the emerging technologies are not, which contraries the conventional wisdom. We discuss the contextual conditions of the Brazilian industry that may require a partial implementation of the Industry 4.0 concepts created in developed countries. We summarize our findings in a framework, that shows the perception of Brazilian industries of Industry 4.0 technologies and their relations with the expected benefits. Thus, this work contributes by discussing the real expectations on the future performance of the industry when implementing new technologies, providing a background to advance in the research on real benefits of the Industry 4.0.*

Keywords: Industry 4.0; digitization; advanced manufacturing; industrial performance; emerging countries.

REFERENCES

[1]. ABDI - Agência Brasileira de Desenvolvimento Industrial, 2017. Inovação, Manufatura Avançada e o Futuro da Indústria. Available at: (www.abdi.com.br/Estudo/ABDI_Inovacao_Manufatura_Vol01.pdf).

[2]. Abele, E., Wörn, A., Fleischer, J., Wieser, J., Martin, P., Klöpper, R., 2007. Mechanical module interfaces for reconfigurable machine tools. Prod. Eng. 1, 421–428. https://doi.org/10.1007/s11740-007-0057-1

[3]. Abramovici, M., 2007. Future Trends in Product Lifecycle Management (PLM), in: The Future of Product Development. Springer Berlin Heidelberg, Berlin, Heidelberg, pp. 665–674. https://doi.org/10.1007/978-3-540-69820-3_64