

Quality Systems and the Multi-Indentured Digital Thread

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ABSTRACT

Digital Transformation, the process of conducting organizational change through the use of digital technologies such as 3D Printing, Internet of Things, and Cloud Computing, has characterized a new era of supply chain management as businesses around the world work to adapt to an ever-evolving digital market (Ageron, et al., 2020)(Agrawal, Narain, 2018). However, successfully performing this transformation has roadblocks, one of which is more common than others. Research shows that while exponentially more executives across the full range of industries are adopting a digital supply chain platform in the last decade, the transformation has been hindered due to detailed information for each supply chain operation being stored locally. These storage points represent an ineffective collaboration among the individual sections of a supply chain. This failure to collaborate will inevitably result in more complex barriers in the future digitalization initiative and restrict the ability to provide effective response options to potential failures. By creating a formal framework and quality-controlled system for managing the Digital Supply Chain that is effective and valid for all industries, we can move into the fourth industrial revolution (Büyüközkan, Göçer, 2018). Using powerful tools such as Cloud Robotics and the 6-dimension supply chain model proposed for Industry 4.0, organizations can bring data from each individual storage location into a system that runs efficiently and effectively, which will provide businesses with the power to adapt to the digital market with the same speed with which the market continues to evolve (Garay-Rondero, et al., 2020).

REFERENCES

- Ageron, B., Bentahar, O., & Gunasekaran, A., Digital supply chain: challenges and future directions, *Supply Chain Forum: An International Journal*, Vol. 21 No 3, pp 133-138. (2020), <https://doi.org/10.1080/16258312.2020.1816361>
- Garay-Rondero, C.L., Martinez-Flores, J.L., Smith, N.R., Caballero Morales, S.O. and Aldrette-Malacara, A., Digital supply chain model in Industry 4.0, *Journal of Manufacturing Technology Management*, Vol. 31 No. 5, pp. 887-933, (2020). <https://doi.org/10.1108/JMTM-08-2018-0280>
- Prakash Agrawal and Rakesh Narain 2018 *IOP Conf. Ser.: Mater. Sci. Eng.* 455, <https://iopscience.iop.org/article/10.1088/1757-899X/455/1/012074/meta>
- Gülçin Büyüközkan, Fethullah Göçer, Digital Supply Chain: Literature review and a proposed framework for future research, *Computers in Industry*, Volume 97, (2018), pp 157-177, <https://doi.org/10.1016/j.compind.2018.02.010>.