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- [5] M. Wang, J. Zhou, and S. Jing, "Cloud manufacturing: Needs, concept and architecture," Proc. 2012 IEEE 16th Int. Conf. Comput. Support. Coop. Work Des., pp. 321–327, May 2012.
- [6] L. Zhang, Y. Luo, F. Tao, B. H. Li, L. Ren, X. Zhang, H. Guo, Y. Cheng, A. Hu, and Y. Liu, "Cloud manufacturing: a new manufacturing paradigm," Enterp. Inf. Syst., vol. 8, no. 2, pp. 167–187, Mar. 2014.
- [7] D. Wu, D. W. Rosen, L. Wang, and D. Schaefer, "Cloud-based Manufacturing: Old Wine in New Bottles?," Procedia CIRP, vol. 17, pp. 94–99, 2014.
- [8] S. Y. Nof, "Collaborative control theory for e-Work, e-Production, and e-Service," Annu. Rev. Control, vol. 31, pp. 281–292, 2007.
- [9] M. Moghaddam, J. R. Silva, and S. Y. Nof, "Manufacturing-as-a-Service—From e-Work and Service-Oriented Architecture to the Cloud Manufacturing Paradigm," IFAC-PapersOnLine, vol. 48, no. 3, pp. 828–833, 2015.
- [10] F. Ning, W. Zhou, F. Zhang, Q. Yin, and X. Ni, "The architecture of cloud manufacturing and its key technologies research," 2011 IEEE Int. Conf. Cloud Comput. Intell. Syst., pp. 259–263, Sep. 2011.
- [11] W. Liu and J. Su, "A solution of dynamic manufacturing resource aggregation in CPS," 2011 6th IEEE Jt. Int. Inf. Technol. Artif. Intell. Conf., pp. 65–71, Aug. 2011.
- [12] D. Schaefer, "Ac 2012-3017: Distributed Collaborative Design and Manu-Fecture in the Cloud-Motivation, Infrastructure, and Education," Researchgate.Net, no. July 2015, 2012.
- [13] X. V. W. and X. W. Xu, ICMS: A Cloud-Based Manufacturing System . 2013.
- [14] Ibm, "Benefits and Methods of Implementing BPM on System," no. March 2008, 2008.
- [15] L. Zhang, Y. Luo, F. Tao, B. H. Li, L. Ren, X. Zhang, H. Guo, Y. Cheng, A. Hu, and Y. Liu, "Cloud manufacturing: a new manufacturing paradigm," Enterprise Information Systems. pp. 1–21, 2012.
- [16] S. a White, "Introduction to BPMN," BPTrends, pp. 1–11, 2004.
- [17] O. M. G. Omg, R. Parida, and S. Mahapatra, "Business Process Model and Notation (BPMN) Version 2.0," Business, vol. 50, no. January, p. 170, 2011.
- [18] B. M. Owen, J. Raj, and P. Software, "BPMN and Business Process Management Introduction to the New Business Process Modeling Standard," Management, vol. 2678, p. 27, 2003.
- [19] Jorick Lartigau, Lanshun Nie, Dechen Zhan, Xiaofei Xu and Tehani Mou, "Business Process Interoperability to support Order Processing in a Cloud Manufacturing Environment," Springer-Verlag London Ltd., vol. 25, no. 9, pp. 1682–1690, 2012.

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