

# THE EVOLUTION A PULL SYSTEMS: KANBAN, CONWIP AND HYBRID

**ROTARU Ana**

University of Pitesti

[ana\\_c\\_rotaru@yahoo.com](mailto:ana_c_rotaru@yahoo.com)

**Keywords:** pull system, production, Kanban, CONWIP, hybrid.

Pull systems are control systems where the flows of production through the factory are based on a customer's demand. Pull Systems control the flow of resources in a production process by replacing only what has been consumed. They are customer order-driven production schedules based on actual demand and consumption rather than forecasting. Implementing Pull Systems can help you eliminate waste in handling, storing, and getting your product to the customer. In this paper, one tries a description the evolution of pull system and also makes some comparison between Kanban, CONWIP and hybrid.

Production control is the function of management which plans, directs and controls the material supply and processing activities through the entire manufacturing cycle. It plays a key role in the success or failure of any corporation. Effective control policies are necessary in any manufacturing firm desiring to maintain high quality service with minimum inventory at a minimum cost.

Production control systems that control material flow and inventory are therefore necessary for balancing such objectives. Systems used for production control can be further categorized as push, pull, or hybrid depending on the type of planning strategy they utilize.

These last decades, much research has focused on finding ways to improve production control. The Kanban technique has been a kind of revolution. It aims at reducing lead times and work-in-process (WIP) levels in the factory. Therefore, new pull strategies have been developed recently: Conwip and a Kanban/Conwip hybrid; see Spearman and Hogg (1986), and Bonvik et al. (1997) respectively.

## REFERENCES

1. Bonvik, A. M. (1996) Performance analysis of manufacturing systems under hybrid control policies. Ph.D. Dissertation, Massachusetts Institute of Technology.
2. Bonvik, A. M., Couch, C. E. and Gershwin, S. B. (1997). A comparison of production-line control mechanisms, *International Journal of Production Research*, 35(3), 789±804.
3. Framinan, J. M., Gonzalez, P. L., & Ruiz-Usano, R. (2003). The CONWIP production control system: Review and research issues. *Production Planning and Control*, 14, 255–265.
4. Gstettner, S., & Kuhn, H. (1996). Analysis of production control systems kanban and CONWIP. *International Journal of Production Research*, 34(11), 3253–3274.
5. Hopp, W., & Spearman, M. (2001). *Factory physics-foundations of manufacturing management* (2nd ed.). Boston: McGraw-Hill
6. Huang, M., Wang, D., & IP, W. H. (1998). Simulation study of CONWIPfor a cold rolling plant. *International Journal of Production Economics*, 54, 257–266.
7. Monden, Yasuhiro, "What Makes the Toyota Production System Really Tick?" *Industrial Eng.*, Vol. 13(1), pp.36-46, Jan. 1981a.
8. Muckstadt, J. A., & Tayur, S. R. (1995a). A comparison of alternative kanban control mechanisms: I, background and structural results. *IIE Transactions*, 27(1), 140–150.