



The 5 Organizational Foundations Of Just-In-Time

By Miles Free, Director, Technology Services

mfree@pmpa.org

Having worked with and supplied a number of Japanese transplant manufacturing companies, I was always impressed with the depth of their systems and planning that made just-in-time work for them. Many of us in manufacturing are providing products to our customers on a just-in-time basis, but I wonder if we truly have a solid foundation under our so-called just-in-time systems?

Uninterruptible sourcing. Our businesses apply tools and energy to convert workpiece materials into precision components for our customers' many applications. Shortages of raw materials, demand for low inventories and high inventory turn rates seem to be contrary factors that conspire against our just-in-time success. Our supply chain's desire to keep inventories lean makes management of tooling supplies and materials a critical vulnerability should any event disrupt a process anywhere in the chain.

While we may take our utilities for granted, the August 2003 blackout

remains a leading indicator of the lack of robustness of the North American electrical power grid. Additionally, I can recall several "boil alerts" for water in Cleveland over the past couple of summers, so the omnipresence of our utilities is no longer simply a matter of faith. What steps have you taken to ensure that a failsafe supply of the materials, tools and uninterruptible utilities will be available for your company to ensure your just-in-time delivery?

Robust systems for production. "Robust systems" means different things to different people. A reliable alarm clock and a car that always starts are two examples that come to mind. In our production systems, the complexity of our machine tools, gaging systems and manufacturing information systems all contribute to the possibility of unscheduled downtime. Talented maintenance people contribute to our success by minimizing the downtime and quickly getting our machinery back into production. However, in a just-in-time world, any unscheduled downtime jeopardizes your delivery.

The best implementations of robust production systems focus on preventive and predictive maintenance rather than reactive and responsive maintenance. The top performers take it a step further by engineering their production systems to maximize uptime rather than to achieve a bargain on the capital cost of the equipment.

What indicators does your company use to measure your manufacturing systems' uptime and reliability? Do your indicators show continuous

improvement? What percent of your maintenance expenses can you honestly attribute to preventive, rather than reactive, maintenance?

Standardized work. This is one of the most underappreciated keys to success in manufacturing. Training employees is important to ensure safe and adequate performance. However, standardizing work involves more than training employees, it involves understanding the sources and eliminating the causes of in-process variability in order to reduce deviations and unexpected problems. Whenever an opportunity for problem-solving or an out-of-control situation is presented, I ask three questions: Was there a procedure? Was it followed? Was it effective?



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Without a standard, performance will always be a gamble. Will we make enough? How will we know? Without clear work standards, our companies face threats from both unexpected downtime because of variations in performance and waste from operations.

Do you really have work standards—standards that spell out cubic inches of metal removal rates by grade, for example? Do you have standards that are based on equipment nameplate parameters such as horsepower, speed, capacity, etc., or does your shop run on pseudo-standards like parts-per-hour, where the true outcome depends on or may be hidden by other factors?

Systems for ensuring integrity of your systems. Having all of the above are essential to being a just-in-time supplier, but the commercial aviation, space and military industries have learned that only having the right systems does not ensure success; having the systems right is equally important.

The Plan-Do-Check-Act cycle embodies the importance of the “check” and “act” in systems thinking. It really doesn’t get much simpler—or better—than that. What

ongoing systems (besides ISO/TS audits) does your company have in place to ensure that your systems are functioning as they should? How often do you test your systems for sufficiency? What was the last system deficiency that you identified and corrected?

Commitment to delivery. Even with everything in place, unless management, employees and company cul-

ture are all committed to “delivery regardless of the challenges,” just-in-time delivery will be a specification for a desired state, not a deliverable. Do all of your people understand the commitment to on-time delivery? Are they empowered to do whatever it takes (for example, using premium freight) to make the delivery happen? Are they empowered to drive the parts there themselves? Would they?

ment to deliver on-time regardless of the challenges, without a system for assuring the integrity of your company’s systems and processes, without standardized work practices in concert with robust preventively maintained production systems, and without provision for uninterrupted supply of key materials, tools and utilities, just-in-time will be “mostly-on-time” and will necessitate some frantic “just-in-case” efforts on the part of your customer.

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Do your responsible employees know that they will be held “harmless” for “acts of commission” to

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