



The FORGING PRESS

The Monthly Newsletter of the Forging Defense Manufacturing Consortium



March 2005

Administrative Lean

Lean Manufacturing, a powerful strategy based on the Toyota Production System, is “a manufacturing philosophy that shortens the Customer Wait Time by eliminating waste between the receipt of a customer order and the shipment of that order to the customer”.

Administrative/Office Lean focuses on the mapping, evaluation and re-design of office processes to eliminate the waste that is unavoidable when these processes connect a set of functionally-organized departments, such as Human Resources, Sales/Marketing, Accounting and Engineering. The following wastes are reported by those who work in the “paper factory” that supports the shop floor of a custom forge shop:

- Ergonomics-related injuries forcing absenteeism
- Errors or incomplete data entries in paperwork
- Piles of incomplete documents in boxes waiting for personnel to complete them
- Unused office supplies
- Delays in flow of paperwork between various individuals
- Too many steps to gain approval for release of documents
- Walking and electronic communications to clarify, correct or obtain information
- Transferring paperwork between people or departments
- Incomplete forms
- Duplicate forms
- Incorrect or inaccurate documents
- Wrong format for data
- Work-related stress
- Checks and double-checks
- Over- or under-staffing
- Repeated paper-to-computer data entry
- Manual calculations and tasks that could be computerized

Administrative Office Lean seeks to identify the delays and wastes embedded in office and other business processes that support manufacturing in order to streamline, possibly automate, the flows of information, decisions and activities in these processes using Information Technology (IT).



Project Background

Ulven Forging Inc. (UFI) is currently engaged in a pilot Office Lean project to reduce Customer Wait Time in New Order processing. A key objective of this project is to design a planning and execution system for their Front Office which can simplify, integrate and automate the majority of their office processes. IT is viewed as an important enabler and facilitator of Office Lean. Currently, most of the office processes are done manually. This forces office personnel to spend much time “pushing paperwork” instead of working on creative tasks related to their jobs. Different corporate functions are not connected which creates difficulties in sharing information, inter-office and inter-personnel communications, and hand-off (“baton-passing”) delays between consecutive process steps. Documents often get misplaced or get lost. Reliance on memory often causes office personnel to make mistakes, especially when they have to simultaneously deal with multiple tasks labeled as **CRITICAL** and constant interruptions in the office. There is a

consensus among the management and office personnel that the total time to complete New Order processing would be significantly reduced if a functional, fully-integrated IT system, based on Lean Thinking, was developed to control and organize all business/office and manufacturing support processes.

Project Activities

The first step taken was to develop a Current State Value Stream Map (VSM) of the New Order process to understand and standardize the current execution steps. The map proved an effective visual tool that showed the overall process flow, the inter-relationships between the various steps, the incidence and scale of occurrence of the Eight Types of Waste, parameters for each activity in the map and current values for key performance measures. A unique feature of this map is that it distinguishes between the material (paper and people) flows and the information flows that signal, monitor and prioritize the paper flows. Several Six Sigma tools were used to identify and rank the root causes for the wastes and delays. The diagnostics based on these analyses were presented to UFI management and a Future State Map was developed that would eliminate those wastes, improve speed and accuracy of process execution and automate some of the office functions and business processes.

Key Recommendations

- Implement an ERP (Enterprise Resource Planning) system to replace the current manual system
- Hire another engineer to work full-time as a Production Planner and Scheduler
- Investigate an FCS (Finite Capacity Scheduling system) to speed up the current manual (and highly inaccurate) shop scheduling
- Establish a QA (Quality Assurance) department to continuously monitor quality, and achieve robust process quality

Metric	Current State	Manual Future State	Improvement	ERP Future State	Improvement
Lead Time	10.19 days	2.41 days	76.38%	3.35 hrs	95.30%
Process Time	11.3 hrs	9.92 hrs	12.24%	2.35 hrs	79.20%
Delay Time	8.5 days	2.14 days	74.79%	60 min	98.32%
# of Operations	28	21	25.00%	14	50.00%
Processing Cost	\$437.25	\$382.17	12.60%	\$87.17	80.06%

For more information
 contact FDMC at
fdmc@aticorp.org or
 visit our website,
<http://fdmc.aticorp.org>