



# Connecticut Center for Advanced Technology, Inc.

## Value Stream Mapping – Ring Manufacturing Process



Sterling Engineering is a progressive, high-quality, low-cost producer of complex, precision machined parts and assemblies ranging in size from 6 inches to 6 feet. These parts include Turbine Airfoils, Cases, Shafts and Compressor Wheels. They have over 60 years of service excellence to worldwide OEM's in the aerospace, power generation, semiconductor machinery and industrial machinery industries. Sterling Engineering is both ISO9001:2000 and AS9100 certified.



### Introduction

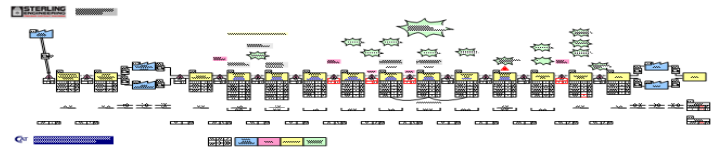
After demonstrating eVSM™ (an electronic Value Stream Mapping software package) and creating an Indirect Support Operations Value Stream Map (VSM), CCAT assisted Sterling Engineering with another VSM project. CCAT was represented by a cross functional team encompassing both Modeling and Simulation (M&S) and the Manufacturing and Supplier Chain Initiative (MSCI). The Sterling Engineering team consisted of associates who recently attended some Lean training and had received instruction on the subject. The VSM was traditional in nature involving manufacturing processes for a high volume Sterling Engineering part.

### Methods / Procedures

Value stream mapping is a valuable visualization tool for developing and implementing lean manufacturing strategies. It also provides a common language for communication. The VSM is a diagram of a product's production path from beginning to end that captures both value added and non-value added activity. It is the starting point for recognizing waste and identifying the causes. The elements of production that add no value to the product are considered to be waste. These elements include overproduction, inventory, unnecessary transportation, defects, waiting, excessive motion and processing.

The team employed a customary approach and began the VSM development at the shipping end and worked upstream. They collected the current state information on Post-It® notes while walking along the actual production pathway. The data included cycle time, changeover time, batch size, operators, and uptime. Upon completion, the team compared, consolidated and

posted all the process blocks, as well as any associated information. They focused on material flow first then added inventory, movement, etc. The following is the current state VSM that was created using eVSM.



Sterling Engineering – Current State Value Stream Map

### Conclusions

This VSM effort provided Sterling Engineering with an accurate current state that allowed the team to better identify waste throughout the manufacturing process. They were able to look at the entire stream of processes and the part flow from raw material to finished product. The effort served as an excellent hands-on learning experience for the Sterling Engineering team on how to use Value Stream Mapping and eVSM to document the “as-is” condition. In addition to identifying a potential bottleneck/constraint, the team used a brainstorming approach to guide the creation of the future state map that focused on the elimination, reduction, simplification and/or integration of non-value added activities. This helped the team to identify the need for future Kaizen events for changeover time reduction, overall part transportation/handling, cycle time reduction, 5S, part flow and the investigation of faster inspection methods.

### References

*“CCAT led two VSM initiatives for us recently and the work exceeded my expectations both times. Not only were we able to gain an insightful picture of our process, but their leadership also exposed our people to some real world scenarios and gave them hands on experience based on what they recently learned in a classroom environment. Kaizen events are planned to eliminate waste identified in the map. CCAT was helpful, professional and filled a leadership role for us throughout both projects. I am extremely pleased with the overall results as well as their contribution and have recommended CCAT's aid to my peers.”*

Paul Barrow, Manufacturing Manager  
Sterling Engineering Corporation  
[pbarrow@sterlingeng.com](mailto:pbarrow@sterlingeng.com)  
[www.sterlingeng.com](http://www.sterlingeng.com)

### For more information

Susan Coffey /Don Balducci  
CCAT, Inc.  
222 Pitkin St, Suite 106  
East Hartford, CT 06118

Phone: 860-291-8832  
Fax: 860-291-8874  
[www.ccat.us](http://www.ccat.us)