



# PROJECT BRIEFING

## OPERATIONAL IMPROVEMENTS

*"This project has successfully resulted in the implementation of cellular manufacturing at our facility, leading to improvements in product leadtime and product quality."*

Vice President, Operations  
Neapco, Inc.

Project work completed in partnership with Ben Franklin Technology Partners of Northeastern Pennsylvania and the Enterprise Systems Center of Lehigh University.

## PROJECT SUMMARY

Neapco, a manufacturer of driveline assembly for automotive and agricultural industries, partnered with personnel from Enterprise Systems Partners, Inc. to develop an integrated cellular manufacturing system. The "Product Flow Analysis for Cellular Manufacturing" project, funded by the Ben Franklin Technology Partners of Northeast PA, was focused on improving operational productivity and product quality while reducing cycle time and costs.

## PROJECT DESCRIPTION

The project team first selected product families and gathered factory layout, product routings, and demand data. The next steps involved analyzing material handling information to optimize product flow and identify machine clusters suitable for cells. The team then performed a utilization analysis to determine capacity constraints within the cells.

Through this analysis, the project team identified seven potential machine groups that could be developed into manufacturing cells. A stub shaft cell was selected for the first implementation.





The process to implement the cell began by documenting the existing process. Detailed process data was collected using the value-stream analysis technique. Once the current process was documented, the team worked on eliminating as many non-value added steps as possible. Process times were balanced to meet the targeted Takt time of the cell.

The next step was to design the cell layout. The team considered issues related to ergonomics, material handling requirements, tooling storage, and part buffers.

Quality, maintenance and planning activities were then integrated within the cell. An inspection station was set up within the cell and a preventive maintenance schedule was established. The team developed an optimization and simulation decision support tool that minimized changeover times. A rate-based schedule was also created to improve cell efficiency.

By implementing this cellular manufacturing system, Neapco was able to reduce material handling and lot sizes, avoid batch processing, improve product quality, reduce cycle time and operating costs, and minimize paperwork.

## RESULTS

-  Reduced lead time.
-  Improved quality.
-  Improved scheduling.
-  Reduced overall production costs by 10%.

