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MINNESOTA TECHNOLOGY, INC. is Minnesota's technology-based economic development organization, contributing to the growth of Minnesota's economy through technology. Contact: Jacques Koppel, 111 Third Avenue South, Suite 400, Minneapolis, MN 55401, (612) 373-2900, Fax: (612) 373-2901, Email: lnelsen@mntech.org, Website: <http://www.minnesotatechnology.org>

**THE  
MANUFACTURING  
EXTENSION  
PARTNERSHIP  
IN MINNESOTA**

Manufacturing Extension Partnership (MEP) is a nationwide system of services and support for smaller manufacturers to become more globally competitive. At the heart of the system is a network of affiliated, locally-based manufacturing extension centers. Each center, like Minnesota Technology, Inc., is a partnership, typically involving federal, state, and local governments; industry; educational institutions; and other sources of expertise, information and funding support.

**COMPANY CLIPS**

**Crest Health Care Applies Technology And Lean Principles To Save \$500,000**

Crest Health Care is a leader in the development, manufacture, distribution, and marketing of nurse call peripherals, doctor register systems, push button switches, speakers, curtain hooks, replacement parts, and engraved signs for the health care industry. Crest manufactures more than 100 of these items, offers 6,000 products in its catalog, and sells to an international customer base. Crest Health Care, established in 1967, moved in 1972 to the small town of Dassel and employs 75 people.

Minnesota Technology, Inc. (MTI) has worked with Crest Health Care since 1993 on a variety of projects, including the development of a pay incentive program, provision of basic manufacturing training for employees, assessment of supplier qualifications, improvement of shop productivity, and the selection of enterprise resource planning (ERP) software. As the company grew, it felt the need to replace its old telemarketing system with an improved information software system to support the growth of eCommerce and adapt sales to new eBusiness methods. At the same time, the company wanted to reduce costs and lead times while increasing capacity to more quickly fulfill customer orders. Matching inventory to demand could potentially tie up millions of dollars, but Crest had to be able to fulfill orders within hours or days of a customer's request. The company contacted MTI for assistance.

During two separate sessions, MTI trained 36 Crest employees in the concepts of lean manufacturing to help the company support long-term growth, reduce inventory, improve efficiencies, and increase profitability. For these sessions, MTI identified resources and helped present a seminar/simulation on lean manufacturing concepts, including standardized work, workplace organization, visual controls, setup reduction, batch size reduction, point-of-use storage, quality at the source, workforce practices, and pull systems. Following the training, MTI gradually implemented lean concepts during several meetings with Crest management.

*Continued*

**STATE STATS**

DATA\* COVERS JANUARY TO DECEMBER 2001

Number of projects completed with firms  
**1145**

Number of firms served  
**734**

Number of firms served for the first time  
**182**

Federal cost share for current operating year  
**\$2,016,000**

State/other cost share for current operating year  
**\$4,032,000**

*\*Data as reported from center*

DATA\*\* COVERS JANUARY TO DECEMBER 2001

Increased sales & retained sales  
**\$82,224,000**

Client capital investment  
**\$34,503,658**

Total cost savings  
**\$14,178,153**

Jobs (created & retained)  
**655**

*\*\*Source: Independent client impact survey*

**For additional information,  
contact Dede McMahon 301-975-5020**



Crest then wanted to incorporate more lean manufacturing concepts into its operations and asked MTI to conduct a value stream mapping exercise. This service created a map of the flow of products from raw materials, through all manufacturing processes, and off the loading dock as finished goods for the company's call cords product family. Crest management used this map to identify areas where automation could make the most impact, efficiencies could be improved, and inventories could be reduced while supporting the business growth objectives. As part of the learning process, MTI also arranged a series of collaborative meetings with another local manufacturer so that managers and engineers from both companies could benchmark best manufacturing practices.

MTI performed a software assessment to objectively analyze Crest's current and future software needs, identify and prioritize the company's data requirements, and provide information on features and matches of potential software packages. Crest Health Care purchased and implemented a new ERP system that has positioned the company for growth. Implementation of the new system has allowed Crest to reduce its inventory by \$300,000. Lean concepts applied to the call cord product family resulted in a total impact of \$218,000. Based on this success, Crest Health Care is applying its newfound lean skills in other product families.

### **Powerain Systems Implements Federal Lab Technology To Save \$75,000**

Powerain Systems, Inc. has produced a line of automatic, touchless, hydraulically operated car and truck washes in Tower since 1991. Financed by private and venture capital funds, the company employs 18 people and has grown to sales of nearly \$4 million between 1991 and 2001.

Powerain Systems manufactures a standard automated car wash system attached to an overhead gantry, or metal frame. The company wanted the overhead gantry frame and track analyzed to optimize the design for its use of materials. Powerain contacted Minnesota Technology, Inc. (MTI) to help it perform the analysis. MTI located a federal resource with expertise in design analysis at the Department of Energy (DOE)'s Sandia National Laboratory. Through its Small Business Technical Assistance Program, companies can receive limited technical assistance at no cost. The DOE program is not meant to compete with private industry and is available only to companies without the resources readily available. MTI captured Powerain's goals in analyzing the gantry system, which were presented to and accepted by the DOE. MTI also submitted a CAD drawing of and supporting documentation for Powerain's gantry system to the DOE for a finite element analysis. During the analysis, the DOE conducted simulated tests of the gantry's design to analyze its material, strength, weight bearing locations, and safety load factors. The DOE completed the finite element analysis in April 2001. MTI then worked with the DOE and Powerain to transfer and begin implementing the recommendations contained in the analysis.

The finite element analysis revealed that the original gantry design was more robust than necessary because too much material was used in the frame and its beams were too thick. The analysis also revealed that there was no load on some of the frame's support members. The DOE suggested streamlining the design by reducing the amount of material used in the gantry frame and removing the supports that were not load bearing, thereby reducing both material and labor costs by more than \$75,000. Powerain implemented the DOE's recommendations, created a new design, and is now producing a new gantry, which was launched in the summer of 2001 at a national trade show. The new design netted immediate sales for the company, and is expected to be a successful product in the future.