



Lean Case Study: Flexxaire Manufacturing Inc. A Consortium Success Story

January 2004

“If we could simplify everything we do in our organizations so that everyone could understand ... just imagine the improvements we could make.”

The Company:

Flexxaire Manufacturing employs 29 people and manufactures cooling fan systems. Their primary product is in-motion variable pitch cooling fans for on highway and off highway heavy equipment applications.

The Challenge:

Flexxaire Manufacturing was faced with high inventory levels and long lead times; and obsolete or slow moving inventory was creating a concern with cash flow. Management wanted to increase capacity and profitability without increasing personnel or equipment; remove wasteful steps from manufacturing and office processes; increase quality and customer satisfaction; and allow for growth through waste reduction.

In Operations

- Set-up times were long, sometimes as much as 4 hours
- Parts were scheduled with long lead times, in part due to batch sizes
- History and forecasts were used to predict parts required

In Customer Service

- Lead time was 6 to 8 weeks for a fan
- For other parts, lead time was as much as 8 to 12 weeks
- On time delivery has always been 95% or better

In Inventory

- High inventory levels
- Used inventory to improve lead times
- Slow turning inventory
- Obsolete inventory due to design changes

The Employees

- Not a lot of employee involvement or empowerment
- Training was done but was driven by management
- Mostly management initiatives
- Safety was excellent - one lost time accident in 13 years

The Approach:

Led by GM & CEO Daryl Friesen, as well as Flexxaire's Lean Leader Tom Clarke, a first step for the company was to join the Edmonton Manufacturing Consortium to leverage from other companies facing similar challenges.

Key initiatives included value stream mapping to help find wastes and eliminate them in both the plant and office, as well as creating pull systems based on customer demand.



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Flexxaire invested in Lean training for its employees, which would also help to change the culture in the company. Although it was primarily management involvement that created the foundation of support required for future change, employees became more involved as they were given more company information and empowered to create teams to develop pull systems.

The Results:

Reduced inventory has resulted in increased cash flow and the virtual elimination of short term debt. Flexxaire remains profitable despite the stronger Canadian dollar, and they have reduced the average dollars of inventory to support each unit sold by 49%.

In Operations

- Machine set up times reduced in some instances from 4 hours to 30 minutes due to investment in proper tooling and better fixtures and jigs
- Re-organization of assembly, packaging and blade cutting into cells have seen improvements as high as 93% reduction in motion and 91% reduction in wait time (figures from blade cutting cell).
- Lead time for parts has been reduced from 8 to 12 weeks to 2 to 4 weeks (there may be some purchased parts requiring longer lead times)
- By developing rules, sales can confirm a ship date with a customer without getting approvals
- By developing rules sales can complete an order and it goes directly to production for assembly
- Increased throughput in 2003 by 63% despite one employee leaving and two employees being absent for apprenticeship training

In Customer Service

- Lead times reduced from 6 to 8 weeks, to between 3 days and 2 weeks.
- Use Kanban for most internal components (currently not tracking internal lead times)

In Inventory

- Reduced inventory since 1999 by 45%
- Inventory is currently at its lowest dollar value ever
- Reduced batch sizes and WIP
- Have freed floor space and we will be doing our first plant layout reorganization in early 2004.
- Increased our inventory turns (total revenue/average inventory value). In 2002 - 3.28 turns in 2003 - 4.53 inventory turns.

The Employees

Flexxaire will continue to strengthen and improve in this area. They are committed to have continuous improvement become part of day to day operation, and recognize that employees need to be empowered through education and by providing the proper tools and resources. Flexxaire is also:

- Working towards educating employees on the value Lean thinking can add



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- Employees have been involved in developing and improving processes and systems. Sales staff, accounting, engineering, support, assembly and machine shop have all been involved in implementing ideas which have helped to achieve the inventory, lead time reductions and the improved financial position of the company.
- Safety record is excellent (currently over 500 days without a lost time accident) and absenteeism has not been a problem.

The Reaction:

"Since getting involved in the Lean journey in 2002, the last two years have produced some excellent results. Our employees are getting more involved in implementing solutions for problems. Management is getting better at allowing employees to make some decisions and become accountable and responsible for their decisions. This is not an easy process and there have been negative comments, but on the whole, employees are talking the terminology and are buying in to the Lean thinking philosophy. Our best example was the feedback we received from participants during a tour we conducted for the Innovation Insights program [run by the Canadian Manufacturers & Exporters]. One of the attendees came to me and said we made a very impressive presentation but what made him believe the presentation was the fact that on the tour our employees were the ones explaining the changes and the benefits to the group, not managers. His comment was that it made the whole experience very believable. Changing your facility to become "Lean Thinkers" is more than changing for change sake, it is about changing for the good of the WHOLE company. We at Flexxair are committed to this process and we have made some excellent progress but we have miles to go. Our company slogan is "Our race for Quality has no finish line" and this slogan fits well with the 5th principle of Lean which is to seek perfection."

(Tom Clarke, Lean Leader/Special Projects Manager)