Vative
truly innovative

CASE STUDY – Mackay Multilink

"VATIVE'S MOST SIGNIFICANT STRENGTH IS THE ABILITY TO IMPLEMENT"

MACKAY

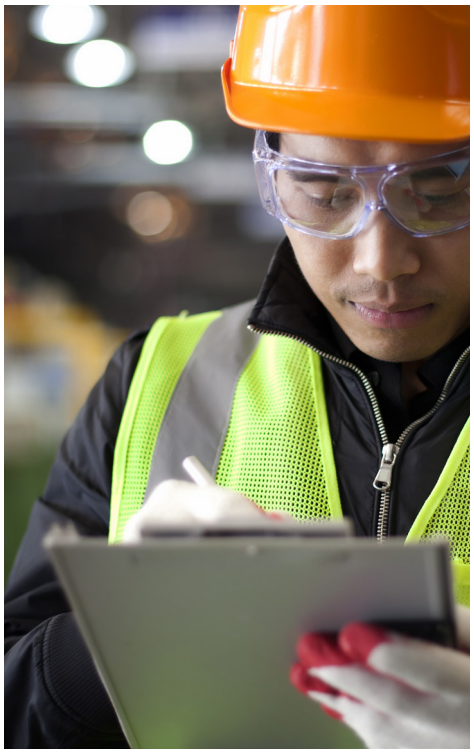
PROCESS EFFICIENCY IMPROVES BY UP TO 20% WITHIN 6 MONTHS

Lean production delivered significant benefits to Mackay Multilink after just six months, with process efficiency increasing markedly in a number of areas. Weekly trailer production increased, the cost per trailer decreased and quality was improved through innovations such as an automated greasing system for wheel bearings.

"Our investment in the Vative work lead to tangible and quantifiable results with improvements in the order of 10 to 20% in a number of areas," says Kevin Nestadt, Managing Director of Mackay Multilink.

Production benchmarks were established at the start of the project, including productivity output, labour force size, average hours required per week, average number of trailers built per week and average labour cost per trailer. To check that system changes were benefiting production processes, KPIs were established and measured, including the number of trailers built per person, product quality and product faults.

Vative's strategy was to increase productivity output by eliminating waste and enhancing the existing value stream. Its process improvements led to operational changes throughout the plant with major production benefits:



1. Value stream map process

Designed to provide an overview of the business functions and highlight any major areas of waste and non-value adding operations, Mackay's current map showed a lead time through the system equal to about 28 days, and a value adding process time of some 375 minutes.

"We identified seven issues that were contributing to this lead time, including production scheduling, materials ordering and assembly line efficiency," says Steven Farrugia of Vative. "Once we had redesigned the

OVERVIEW

INDUSTRY
Manufacturing

CLIENT PROFILE
Mackay Multilink is Australia's premier designer and manufacturer of boat trailers. The company, located in Melbourne, has nearly 40 years' experience in providing Australians with innovative, high quality and rugged boat trailers. Mackay also builds custom trailers for many other applications including transportation of row shells, kayaks, horses and plant and machinery.

BUSINESS SITUATION
While Mackay Multilink is a market leader, it wanted to improve its competitive advantage by reducing material and labour costs and enhancing product quality. The company retained Vative to guide its move from batch-oriented production to a Lean production system. The main focus was to improve productivity output per worker by eliminating waste and enhancing the existing value stream.

SOLUTION
Vative developed a comprehensive, plant-wide strategy to transition Mackay to Lean production. Key elements included:

- 5S workplace organisation and training
- Value stream mapping
- Time studies
- Implementing new stock control systems
- Developing improved layout and labour plans
- Introducing Heijunka planning boards and a Kanban scheduling system for material replenishment.

Kevin Nestadt Managing Director
Mackay Multilink

"Our investment in the Vative work led to tangible and quantifiable results with improvements in the order of 10 - 20% in a number of areas... Vative's most significant strength is the ability to implement."

map, lead time through the system could be reduced to approximately 15 days, and value adding process time to about 320 minutes."

2. Conduct time studies

Time studies were run on the most commonly built models to identify which areas of the process should be optimised and how the production schedule should be revised to improve labour efficiency.

"Some operators were poorly utilised, with significant waste occurring in their work patterns, while the over-utilisation of other operators created a bottleneck for the whole assembly process. The labour issue was complicated by the variety of models built and seasonal demand. The solution was to design a new labour plan that would offer capacity flexibility and multi-skilling of staff," says Farrugia.

3. Assess material storage, exchange and ordering systems

Material shortages were a major contributor to waste, so a two-bin Kanban scheduling system was introduced with replenishment via Just in Time systems. Volumes and pull rates indicated the initial stock levels required for the Kanban system.

4. Develop new layout plan

Overall work efficiency was improved by a new plan which reduced walking times of operators and provided the right materials in the right quantity at the right locations.

5. Link labour plan to capacity planning

Models with similar labour requirements were grouped together, allowing the assembly line to establish some rhythm in its processes. Each trailer model was automatically given a labour requirement according to time studies already conducted in the work areas.

This allowed the production planning department to schedule trailers according to assembly line capacity. It also assisted in setting achievable targets for production teams and ensuring on time customer deliveries.

6. Introduce Heijunka planning boards

These give production insight into future products and encourage better production planning. A delay reason sheet serves as an improvement tool because recurring issues are highlighted and addressed.

7. Develop work instructions

These delivered four key benefits:

- Standardisation of work
- Improved quality and repeatability of product
- Reduced work through routine process motions
- Reduced training time for new operators

8. 5S work area, remove wastes and develop work trolleys

Weekly 1-hour 5S sessions were introduced to set time targets and objectives. The waste identification process revealed more than 489 minutes per day in losses through issues related to work systems, manufactured components, equipment and tools. Opportunities for improvement were highlighted, and major changes took place in the axle lifting unit, greasing machine and new dedicated work trolleys containing full sets of tools.

9. Develop Kanban system for material replenishment

Kanban scheduling systems were established for trailer frames and sub-frames, eliminating demand shortages, improving process flow and stock transparency.

10. Re-layout workshop

Major changes were made to reduce inefficiencies in working patterns associated with storage locations, with all materials and equipment placed in the areas of operation that used them most frequently.

VATIVE

Vative achieves significant business improvement for clients through solutions which are simple, realistic and highly effective. Providing consultancy and training services, Vative's 45-strong team includes Lean and Six Sigma excellence coaches with extensive business management, academic, engineering and trade backgrounds.

OUTCOMES

- Lean process improvements increased process efficiency by up to 20 per cent after six months. The number of trailers built per week increased, the cost per trailer decreased, quality improvements were achieved and an annualised labour saving of more than $170,000 resulted. Further potential savings were identified through additional improvements in material reductions, labour efficiencies, planning, equipment costs and tool loss.