Case Study - Kittiwake Developments Ltd

Established in 1993, Kittiwake Developments has grown into a leading global provider of monitoring and testing systems used in the analysis of lubricant oils & fuel.

Kittiwake sees the offshore oil and gas markets as key for future growth, and will be investing significantly in research and development to increase and improve their range of products for the marine and related sectors.

The company employs around 50 staff at its Littlehampton base, and has established offices in Germany, USA, India and other Asian countries. Around 80% of Kittiwake's production is exported. The company actively pursues an innovative approach to management and product development and recorded a 50% increase in turnover between 2007 (£6m) and 2010 (£9m). The acquisition of an emission monitoring company, completed at the end of 2010, will provide further technologies to address future customer needs.

Through continued innovation, acquisition and by offering enhanced reliability and durability, the company expects to grow substantially over the coming years.

Gavin Friend, Kittiwake's Operations Director comments . . .

> "At Kittiwake we have been driving our lean and sustainable improvement programs to great effect for over a decade. However after spending time with Marine South East we realised we could benefit further from support in both of these areas. The SMARTA program acted as a catalyst by offering free consultancy as well as an extensive support network for companies in the marine sector."
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> "First we took onboard the assistance of the Manufacturing Advisory Service. An internal team was formed and collectively embraced the lean training provided. Thereafter we identified an opportunity to create a work cell for one of our core products, an electronic device capable of accurately measuring water contamination in marine lubricants."
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> "The assembly and calibration process was mapped in great detail, allowing us to quickly identify the value-add and non-value-add parts of the original workflow and layout. With a comprehensive understanding of the problem, the team devised a new work cell layout, work flow and process. This radically improved our productivity."

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"The team carefully measured and quantified the improvement and expressed this in both manufacturing and financial terms. The time to produce each unit was reduced by 89%, the product travel distance was reduced by 92% and we removed *all* finished stock from the warehouse, as we could now produce the assembly so quickly! All in, this removed £42,000 p.a. cost from this single product, whilst providing additional capacity."

"With the training and knowledge we now possess we intend to establish similar work cells for other products in our range. This time though, we can do it unaided."

"We also used SMARTA support to examine our environmental impact. A site survey was conducted and electricity consumption was identified as a prime area for savings. The detail in the survey report helped us realise that legacy lighting systems, primarily in office areas, should be the focus of our efforts. We successfully applied for a Utilise ACTION grant and now all staff work under new lighting systems that will reduce our consumption and carbon footprint considerably."

THE MAS perspective . . .

Gavin was aware of Lean Manufacturing principles and was keen to implement the concepts and philosophy at Kittiwake. Through the SMARTA project Gavin was introduced to Stuart Wood, Lean Six Sigma specialist with Manufacturing Advisory Service – South East (MAS-SE). Stuart visited Kittiwake's Littlehampton facility and conducted a business review which resulted in the provision of a complimentary 1-day Lean Principles workshop for Kittiwake's senior manufacturing management team. On the strength of this workshop MAS-SE were engaged to train key staff and direct a Lean implementation programme covering the manufacture of a primary product, the DigiCell.

The project scope was to train and subsequently support Kittiwake staff in the development and implementation of a Lean solution to DigiCell manufacture.

This involved:

- key staff training on Lean principles;
- evaluation of the DigiCell production operation, from order receipt to dispatch, including material replenishment, inventory management and scheduling;
- development of one-piece-flow production cell with Kanban replenishment system;
- and full implementation of a one-piece-flow cell and material replenishment system.

After training on lean principles, staff were guided through a process mapping exercise followed by waste identification. A solution was then proposed in the form of a one-piece-flow cell with Kanban replenishment triggers from order receipt to material supply. Each process was timed and the work content balanced around the longest process. This required equipment and benching to be reorganised, and some minor test software modification. The management of raw material was then reviewed and Kanban triggers introduced. The cell was then run over a four week period and evaluated. Finished Goods and WIP levels had reduced significantly but replacement from stores to meet the increase in DigiCell productivity proved a constraint, so a custom solution was designed and introduced.

Staff were eager to make improvements but rather than take suggested changes at face value each change was carefully evaluated. As an example, staff were timed building batches of ten units, then again building single unit batches to prove one-piece-flow really was more efficient.

As a result of the changes:

- people productivity increased by 89%;
- value add per employee increased by 34%;
- travel distance reduced by 92%;
- and lead-time reduced by 89%.

. . . all of which generated over £40,000 of tangible benefit.

Additionally, inventory was initially reduced by £2,000, but this figure will rise by tens of thousands of pounds as stock is consumed and not replenished.

With his newly acquired knowledge, the area Team Leader is keen to review the production process of other products, and has identified further gains on DigiCell production. Longer-term, both inventory levels and lead-times are expected to continue to falling.

Kittiwake's Managing Director was delighted by the results and has specifically asked that they be summarised and displayed on the company's principle notice board.