



Caterpillar Peterlee



### Benefits at a glance

- ▶ *External and internal lead times reduced*
- ▶ *30% improvement in productivity*
- ▶ *Customer service improved by 85%*
- ▶ *Data accuracy increased by 60%*
- ▶ *Reduced labour costs*
- ▶ *Increased customer satisfaction*
- ▶ *Improved morale and teamwork*
- ▶ *Oliver Wight Class A certification for planning and control*

## Customer profile

### **Caterpillar achieves major breakthrough in performance using Class A and 6 Sigma**

Using a combination of Class A, 6 Sigma and work cell teams, Caterpillar, has transformed business at its Peterlee plant through step change improvement in operational performance resulting in 30% productivity improvement, substantial reductions in lead times and inventory whilst achieving outstanding customer service - all this achieved during a period of unprecedented new product introduction activity.



“The trick is to avoid the extremes of process and product variability by using 6 Sigma methodology to manage variation.”

*Julian Lowerson  
Deployment Champion  
6 Sigma*

Caterpillar is the world’s largest manufacturer of construction and mining equipment, diesel and natural gas engines and industrial gas turbines. It is also significantly involved in industrial and automotive component logistics. The Peterlee plant employs 600 people at a 310,000 sq. ft. factory making four models of articulated truck.

In 1999, the Chairman of Caterpillar, Glen Barton, challenged all major manufacturing units of Caterpillar to achieve Class A certification in Planning and Control to the Oliver Wight ABCD Checklist in Operational Excellence. Class A was considered key to establishing effective planning and control, integrating the business processes, driving effective management processes and breaking down barriers both internally and across the business.

The Peterlee plant fully accepted the challenge recognising that the time was right but it faced major cultural difficulties. Previous initiatives had failed and factory employees were sceptical, lacking belief that management would sustain the commitment to address data integrity, process redesign and associated behavioural issues. Additionally, there were a number of performance gaps in areas such as customer service, internal and external supplier performance, and system data accuracy.

The division started to follow the Oliver Wight Proven Path of assessment, education and training, project team creation, process design and implementation. The initial assessment identified key performance indicators (KPIs) including master production schedule, supplier and customer delivery performance with poor ratings of between 30%-60% against a Class A target of 95%.

Ten cross functional teams were launched to work on process re-design and data correction including root cause analysis. After three months confidence began to grow within the teams that this time the company was serious and that their efforts would be rewarded.

Bottom line benefits took time to materialise, however. Class A Project Co-ordinator Norman Stables comments: “Despite a lot of effort, the performance improvements were slow to come through. Although this has to be set against a

background of major new product introductions which had always proved to be hugely disruptive to the supply chain.”

Early in 2001, Glen Barton set the further challenge of implementing 6 Sigma programmes at all units. The aim was to help provide method and rigour to problem solving. This injected further full time resource trained in problem solving skills, initially focused to support the Class A effort, and in particular a couple of stubborn performance measures. “Variability is a fact of life,” says 6 Sigma Deployment Champion Julian Lowerson. “The trick is to avoid the extremes of process and product variability by using 6 Sigma methodology to manage variation. It is a simple commonsense process that can be applied to all functions and business processes, and provides a discipline to do it right first time and help eliminate a lot of non-value added work.”

By the end of 2001, efforts were bearing fruit with all Checklist KPIs achieving minimum requirements. A key factor was ensuring that performance measurements were actually ‘owned’ by the managers concerned.

There was also another complementary initiative taking place at Peterlee. A shopfloor and office area certification project had been running since 1995. The purpose was to develop autonomous operational teams able to establish internal customer service standards, measure their own performance and to take action from the measurements. The company had set up 32 certification teams looking at areas as diverse as chassis fabrication, robot welding, information systems, administration support and security.

The teams typically comprised a manufacturing engineer, supervisor, certification facilitator, team leader, several operators and other support as needed. The teams’ main task is defining critical customer requirements and developing quality plans to include material control, training, process controls, and reward and recognition programmes. Norman Stables comments: “The objective of cell certification is to ensure understanding, local ownership and deployment of defined processes and disciplines, eliminate the non-value added operations, increase velocity and generally improve efficiency and quality. It makes sure processes, measures, procedures and customer focus are in place, complementing Class A whilst feeding 6 Sigma and vice versa.” Class A has provided the foundation for effective operations and culture change. 6 Sigma has built upon and

extended such culture change across the business. The bottom-line benefits have included major reductions of both internal and external lead times, reduced inventory, efficiency gains of up to 30% over three years, an 85% improvement in customer service and 60% in data accuracy. The company is now able to build the same number of trucks with greatly reduced labour whilst achieving improved quality and overall customer satisfaction. Intangible benefits include teamworking, morale, and control of the business in place of ‘fire fighting’.

Julian Lowerson stresses that the three initiatives are complementary to each other. “Like any journey, we need a route and a vehicle. Class A is the route showing us the way to manage our business; 6 Sigma is the vehicle which enables progress; and cell certification supports and fuels the journey by providing day-to-day data to implement solutions. “We achieved Class A in planning and control in April 2002. This would have taken longer without the rigorous 6 Sigma methodology to drive solutions to supplier delivery performance which had proved to be problematic. Without doubt the critical success factors were investment in our people through education - we had never before tried to educate the entire workforce, the involvement and leadership from our CEO, and a group determination to stay the course.”





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