

SMALL MOTOR MANUFACTURING COMPANY INTRODUCTION OF SINGLE PIECE FLOW

THE COMPANY

The company are a small motors manufacturer based in the North East of England. Turning over around £20m with just over 100 people they were faced with increasing competition from abroad. They had to find ways of increasing productivity and decreasing costs. This meant that through increasing through put and reducing the lead-times the cost of non-quality could be reduced and the company became more competitive.

THE ASSIGNMENT

The assignment was to review the production line for the assembly of H50 motor line. This line was run on batch production and as a result had a large amount of work in Process. The operators did not work as a team and everyone worked at his or her own pace. Productivity was not as optimum as it could be and there was no team spirit or goals set. Customer changes were frequent even after the job had started resulting in rework and lost production time. The activity took place over a 4 ½ day project with a follow up after a few weeks for items that couldn't be completed in the time frame. The target was to review the activity and improve productivity, reduce WIP and therefore the lead-time through the area.

INITIAL ACTIVITIES

The initial review included the completion of a 5S audit and a tour by the cross functional team to understand the situation. Once the team understood the requirements following some education in lean thinking, problem solving and creative thinking the team set about reviewing the process and developing it having taken part in a simulation game to highlight what was possible. A detailed process mapping session and collecting of some baseline data such as amount of WIP, process dynamic cycle time and distance travelled by operators and the part was then completed. All the possible problems and issues associated with the process were then brainstormed.

The team then developed an approach to implement one-piece flow. The reasons for the implementation of one-piece flow were as a result of the product types, the need to reduce WIP and increase through put while reducing lead-times.

FURTHER ACTIVITIES

The team implemented the solutions through the use of removal of convoy belts, developing part delivery systems that could be fed from behind to enable stations to be implemented. The team also set up new roles and responsibilities for the team, with the team leader becoming the materials handler, person who filled in when required for breaks etc as well as the normal development and people tasks. The area used all the principles of 5S as well as putting in Kanbans and team working. The activity was then trailed and all the operators were trained by the team through the use of the simulation game and presentation slides.

BENEFITS

Apart from educating and training the whole team in Lean principles and how to implement it the cross functional team delivered real bottom line savings. The intangible benefits included operators who were happier, I. Tangible benefits included: -

Key Measures	Before	After	% Imp
WIP (parts)	95	19	80 %
Operations	28	21	39 %
Walking distance (m)	3320	1430	57 %
Parts traffic (m)	149	128	14 %
Units produced (parts)	234	320	36 %
Process dynamic time (mins)	138	29.5	79 %

It is difficult to show the savings in £ as the selling price was so variable and the company only wanted to review in terms of up time of the machine but as the machine was a bottle neck then capacity was increased substantially and therefore so was turnover.