

Manufacturing



Directors of manufacturing companies face a multitude of issues every day in the battle to stay competitive, retain customers, motivate staff, improve performance, create cash flow, invest for the future, and so on. The complexities can be mind-bending:

- The production plan must attempt to meet customer order due dates, but cannot easily take into account all of the capacity issues along the way;
- Parts and materials must be made available from suppliers and sub-contractors, but inventory levels must be controlled;
- Orders must be progressed urgently through the factory, but quality requirements must not be sacrificed at any price;
- There is no scope for additional people, and yet time must be made available for operator training and personal development;
- The objective is 100% achievement of quality, cost and delivery, but although any two of these is possible, achieving all three together every day without fail is very difficult, and beyond the capability of some.

Whatever the industry, however large or small the company, and regardless of the history, the means of working through all of these complexities and achieving real and sustainable performance improvements are available.

The objective has to be to become the best and with that level of commitment, the process of change can begin and will be successful. The basis of that success will be the implementation of lean manufacturing principles that will provide the foundation for an ongoing programme of change.

When a business embarks on a lean programme it does so to improve performance in the eyes of the customer and to increase profitability. It is sometimes a surprise to realise how quickly some results can come whilst working on the full programme and the achievement of the prime objective.

The programme begins with a review of the current state of the order book and the identification of all issues preventing its achievement in terms of meeting the customer specification in every detail, taking no more than the planned time, and meeting the customer due date. Every item will be recorded as will the root cause of any deviation from planned outcome. This initial diagnosis identifies a number of problems for which immediate solutions can be found, and the start point for the creation of long-term improvement programmes.

From that initial benchmark, all or some of the tools below can be implemented to sustain the progress towards manufacturing excellence and leadership in a company's sector.

The key is to identify the route to take and manage the programme so that priorities are established for all employees to work towards. This must not be a random effort without focus in the hope that some benefits will accrue.

Every initiative must be planned and controlled. Companies must run day-to-day whilst the improvement programme is progressing, which requires firm operations management throughout. Typical techniques used in these programmes are:

- Process Mapping to draw up current operational sequences and the flow of work through the factory from which shop floor layout changes can be identified to save time, effort, handling and waste;
- Quality tools to identify the root causes of customer problems and internal rejects using 'Five Whys', Pareto principles, Statistical Process Control (SPC), but especially involving operators, supervision and support staff to find solutions;
- Single Minute Exchange of Dies (SMED) fast changeover techniques to reduce set up times on machines or processes, and reduce line changeover times in order to minimise non-productive time and to help reduce batch sizes and gaining flexibility at reduced costs;
- Set up kanbans to ensure that parts are not made or purchased until the process calls for them to be available, reducing handling costs and inventories;
- Total Productive Maintenance (TPM) to keep plant and equipment available and in good condition, measure equipment effectiveness and set in motion actions to improve machine utilisation;
- Use all of the above principles to identify bottlenecks in the factory which cause late deliveries, excessive overtime, stress, and confusion. Use the same techniques of 'Five whys', etc. to get to the root causes of problems and work with the staff to eliminate them;
- Sort; Stabilise; Scrub; Standardise; Sustain (5S) techniques to create an obstacle free, orderly environment as part of the fix-it phase. The disciplines for organised good housekeeping will work through into every other area of the company.

Above are examples of the way to move forward; there are many other tools available. When it is decided to make a start on the journey to manufacturing excellence the first diagnostic will point the way and indicate the tools to use and the best order in which to apply them.

These benefit from outside specialist assistance, either using trained project managers, or interim managers who have the authority to implement as well as recommend. Success depends on good leadership and commitment. Training and mentoring will form part of the programme so that staff carry the work forward as a normal part of their change to behaviour, giving sustainability to the initial effort.