

## Healthcare

### Implementing TPM

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Total Productive Maintenance (TPM) has been around for more than 20 years. Like many other 'modern management techniques' it is essentially a Japanese development of a western idea, which has since found its way back to the west. In this part of the world it was first adopted by the large automotive companies who in turn disseminated the TPM philosophy to their key suppliers.

This was soon followed by widespread implementation of the technique in the electronics and high-tech sectors. Indeed industry leaders such as Intel were founder members of trade organisations set-up to develop TPM implementation strategies and guidelines for their members. In more recent times the healthcare sector has started to embrace the technique, realising the potential that it offers for productivity improvement.

The principles of TPM are simple and widely known. (The basic theory and application of TPM has been covered in previous editions of Focus. If you require copies, please contact linda.reid@bsm.ie) Also there are enough good implementations out there to ensure that there is no argument about its value in any situation where the ability to manage and use equipment effectively significantly affects overall company performance. Returns on investment of 400 percent or better are not unusual and in most companies TPM can be implemented incrementally across different operational areas which allows for implementation at a rate that the company can resource and sustain.

However, while the theory of TPM is simple and straightforward, good implementation is quite complex and needs careful planning, adequate resourcing and considerable project management skills.

#### Start at the Top

Unless you are the Managing Director or the General Manager of a company, you are going to have to sell the TPM concept to the management team. Top management commitment is essential for successful implementation. TPM represents (at least for most companies) a significant change in philosophy and work practice and there will inevitably be roadblocks that will require top management support to overcome. Also, although more than self-financing, TPM usually requires an initial financial investment in training and consulting. Implementing TPM also requires considerable investment in terms of people's time.

TPM is all about making equipment more reliable and productive which have direct cost benefits. Quantifying the opportunities for improvement is a good way to help sell the concept. The best way to do this is to calculate current OEE. (OEE is an acronym for 'overall equipment effectiveness' which is a measure, expressed in percentage terms, of how effective a piece of equipment is). Many companies are genuinely shocked at how low the OEE is of their key equipment. For example, OEE results of 30 percent for compression presses in tableting plants are not unusual, while for tablet packaging lines the figure is typically as low as 20 percent. (This means that for 80 percent of the time that the line is planned to run, it is not producing sellable product).

#### Typical TPM Structure for a medium sized enterprise

##### TPM Steering Group

Senior Managers  
Engineering/Maintenance  
Union Representative

- Develop strategy and policy
- Give direction to the project teams
- Maintain an overview of the overall programme
- Remove roadblocks
- Approve spend decisions
- Review presentations

##### TPM Processes & Procedures Team

Managers  
Engineering / Maintenance Reps  
Equipment Operators

- Refine & develop PM processes and procedures
- Develop 'autonomous maintenance' process and procedures
- Develop a TPM training programme
- Develop equipment management procedures

##### TPM Equipment Teams

Managers  
Engineering / Maintenance Reps  
Equipment Operators

- Implement autonomous maintenance
- Measure OEE and analyse losses
- Develop solutions & plan implementation
- Implement and monitor results
- Day to day equipment management

### Set up the right structures

The TPM initiative needs to be supported by a well-defined organisational structure (which may be separate to the existing reporting structure). The actual structure depends on the size of the company but it should certainly contain a steering group, which should be cross-functional with top management well represented. If the plant is unionised it is probably a good idea to have a union representative on the steering group.

Again depending on the size of the organisation, it may be suitable to have a separate project team to develop and implement the TPM processes and procedures and another team to work on analysing losses and improving OEE on specific pieces of equipment. These project teams should include equipment operators, engineers, managers and maintenance personnel.

### Pilot Implementation

A large plant-wide implementation requires significant resources which a company can find difficult to sustain. In addition, unforeseen roadblocks can lead to a stop start pattern which could deflate the entire process. Because of these risks, it is often a good idea to start down the TPM road with a limited pilot implementation. This should focus on a bottleneck area of the process. As the OEE and the productivity of the bottleneck improves there should be a net gain in the overall process output. The progress of the pilot and the results being achieved should be made highly visible on a TPM activity board. This will obviously help sell the TPM concept to the rest of the plant. Also the pilot will uncover many of the roadblocks to implementation that will ultimately allow for a smoother roll-out to the rest of the plant.

*Start small, have a pilot implementation*



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### Roll Out

Following a successful pilot implementation, a company can proceed by rolling out to all other areas simultaneously or by implementing in one area at a time. The choice is to a large extent determined by the resources available. Obviously rolling it out to the entire plant will maximise the benefit to the organisation. In practice when supervisors or managers see the benefits of TPM in other areas it is not unusual for them to come looking for implementation into their areas. So it often happens that the process ends up being rolled out to more than one area at a time. The steering group will need to ensure that all implementations are adequately resourced and supported. It is infinitely better to hold off on an implementation rather than to fail.

Faster is not always better. For a medium to large enterprise it would not be unusual to take two years to implement TPM in all areas.

### Summary

TPM is clearly best practice when it comes to the management and utilisation of equipment. It can significantly increase productivity, reduce costs, increase capacity and defer capital expenditure. TPM also offers the opportunity to develop the role of operators and to implement continuous improvement structures and activity. Any company which is prepared to invest the time and resources to pursue a carefully planned implementation can enjoy the competitive advantages that good TPM offers.

#### TPM in Practice

*BSM recently conducted a benchmarking survey to establish the level of implementation of TPM and OEE techniques and improvement initiatives among the leading healthcare companies in Ireland.*

*Participating companies were asked about their use of OEE as a key performance indicator, the use of cross-functional teams to improve / maintain OEE, their application of SMED (Single Minute Exchange of Die – a best practice methodology for reducing set-up times) techniques and their use of corrective maintenance programmes.*

*The results of this survey are presently being collated. A report is being prepared which will include an overview of TPM best practice and results of the Irish healthcare TPM and OEE benchmarking survey.*

*If you would like to receive a copy of this report when it is published, please contact Linda Reid on 091 746918 or by e-mail [linda.reid@bsm.ie](mailto:linda.reid@bsm.ie).*