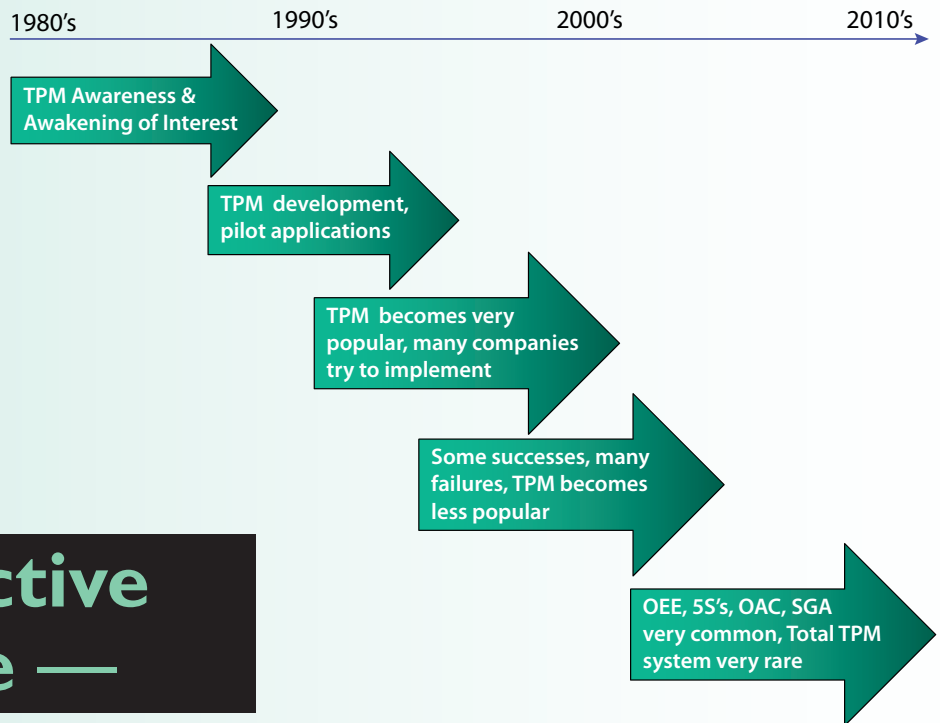


The UK TPM Time Line

It is now a little over 20 years since Total Productive Maintenance (TPM) made its debut in the UK. In this article **Roy Davis**, of MCP Consulting and Training, takes the opportunity to look back at the original introduction of TPM to the western world — in particular to UK industry — and tries to assess how it has progressed, evolved, succeeded or failed during that period.



Total Productive Maintenance —

20 years on in the UK

Historical Background

The significant event that brought TPM to the notice of industrialists and academics within the UK in 1988 was the publication of Seiichi Nakajima's book - 'Introduction to TPM' — that was translated into English and published by Productivity Press. Although the concepts of TPM had been developed in Japan from as early as 1971, the publication of Nakajima's book was the first that people within the UK had heard about TPM — in fact, the book was not published in Japan until 1984.

The emergence of TPM coincided with a major influx of Japanese manufacturing philosophies and approaches of the late 1980's and early 1990's that threatened to spark a revolution in the way in which manufacturing businesses were configured and operated.

The introduction of Just in Time, Kan Ban, Total Quality, Cellular Manufacturing, Single Piece Flow, Poka Yoke Devices, Single Minute Exchange of Die, and problem solving tools such as Taguchi Design of Experiments, Ishikawa Diagrams, Quality Function Deployment, etc were, at the time, quite overwhelming for us Westerners, especially as we were also grappling with the requirements of statistical process control and the move from quality control to quality assurance. For all of us involved in change management within our factories, this was a very challenging but exciting period.

My first glimpse of TPM was a brochure advertising a training course in Manchester that was being provided by the publishers of Nakajima's book. I decided to attend this course as my brief (for the multi-

national manufacturing company I was working with at the time) was to 'improve the way in which we went about maintenance'. However, although the presenters did not appear to be experienced TPM implementers, the explanation of the basic principles and philosophy behind TPM made me realise that this was something very different from all of the other maintenance approaches and techniques that I had hitherto studied.

My interest in TPM gradually increased, particularly as I became the project manager for a major DTI sponsored maintenance improvements project — Maintenance Systems for Modern Manufacturing Businesses. I was fortunate enough to attend what I believe was one of the first TPM-based study tours of British industrialists to Japan, which took place in 1991 and included attendance at the TPM World Congress in Tokyo organised by the Japan Institute of Plant Maintenance (JIPM).

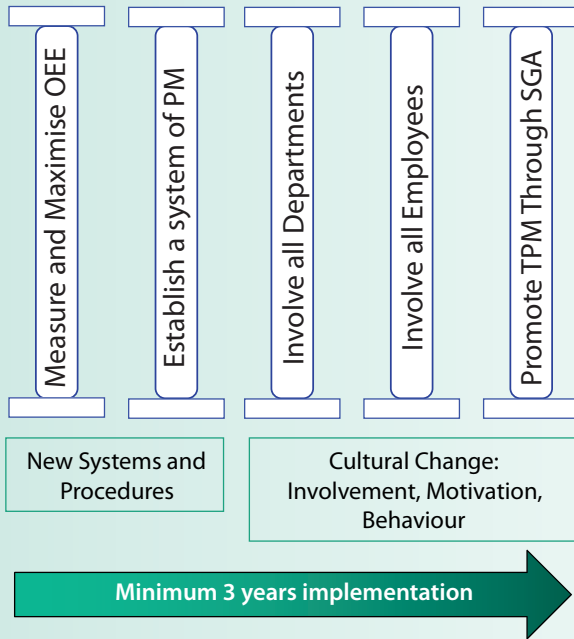
Listening to the papers presented (many of which were not actually related to TPM but other maintenance approaches) and with the added opportunity of networking sessions to discuss the concept with our Japanese hosts, my understanding of TPM began to gel. Especially useful were the site visits to companies in and around Tokyo and Kyoto who were implementing the TPM concept.

On our return to the UK, I and a number of my fellow industrialists worked within our organisations to try to introduce and establish TPM. A 'TPM Club' was set up under the auspices of the Institution of Mechanical Engineers and a committee was formed which included 'TPM minded' people from across a wide range of industry, training and consultancy organisations. Visits were arranged to UK and European sites that were starting to implement TPM and seminars were organised, some featuring prominent Japanese

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The 5 Pillars of TPM



speakers associated with the JIPM, including Professor Yamashina

The Five Pillars of TPM

It is important to remind ourselves of the basic principles and philosophy of TPM, which is as relevant now as it was 20 years ago and is encapsulated by the original 'Five Pillars of TPM' ie,

- Maximize Overall Equipment Effectiveness (it is implied that we are measuring OEE)
- Establish a thorough system of preventive maintenance for the equipment's entire life span
- Implement TPM by involving all departments (eg engineering, operations, maintenance)
- Involve every single employee, from top management to workers on the shop floor
- Promote TPM through motivation management: autonomous small group activities (1)

The original book suggested a three year programme for TPM implementation.

Where are we now?

A glance at the list of the JIPM, TPM prize winners for the last 2 years seems to indicate that there are very few examples of UK companies that have implemented and sustained a comprehensive TPM programme (with the notable exception of Tetrapak and Unilever). The situation may be slightly distorted by the fact that JIPM awards are usually only given to companies that have used their consultancy services either directly or via one of their approved partners. This does however, bear out my own perception that although TPM was extremely popular in the early to mid 1990's, very few UK organisations had the determination or support to introduce, and then sustain, a long-term TPM programme.

There have been some positive influences as a result of UK industry's exposure to TPM over the years though, for example:

- Overall Equipment Effectiveness (OEE) is now used an important key performance Indicator (KPI) by many manufacturing businesses.
- The use of OEE (whether it is calculated correctly or not) has provided more focus on the major losses encountered within manufacturing areas.
- Small group activity involving production operators and maintenance personnel has increased and although they are not always referred to as autonomous TPM teams, in many cases that is exactly what they are.
- There is much more emphasis on workplace organisation and cleanliness in many companies who run 5 S or CAN DO (2) activities and carry out regular shop floor based audits and improvement activities.
- The recording and analysis of downtime information (usually as a part of the OEE measurements) has helped companies to identify the contribution to operational performance that good maintenance practice can make.
- Some Operator Asset Care programmes do encapsulate many of the good principles of autonomous maintenance, especially when they are not just seen as a means of moving technician jobs to operators but also as a means of engaging production operators in continuous improvement activities and developing ownership of their facilities.
- TPM is a familiar acronym these days, most people working within manufacturing have heard of TPM, although I would question whether many really understand its core philosophy and principles.

Conclusion

Returning to the original 5 pillars of TPM it is true to say that the first two that are related to OEE and PM systems have been the least difficult to implement and that is why many manufacturing businesses have embraced them. The other three pillars relate to people issues including involvement, motivation, changing behaviour and overall culture change and are much more difficult and take longer to implement.

That is why TPM programmes take many years to bring about change and so it should not be surprising that these have not been either attempted or if attempted, sustained in many companies as in general, senior and middle managers do not have the will, the longer term vision or the determination to make TPM succeed. ✨

References:

1. *An Introduction to TPM, Total Productive Maintenance.* Seiichi Nakajima – Productivity Press
2. *Productivity Improvements Through TPM.* Roy Davis – Prentice Hall