



As a key enabling system of Enterprise Excellence

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Setting the Scene

As concepts of true sustainable enterprise excellence evolve it is not surprising that the emphasis has focused on what we have always known. True enterprise excellence consists of sustaining and enhancing the engagement and interest of our people in the work they do every day to meet and exceed our customers' expectations. Easily said but the focus now becomes, what are the system in the business we need to focus on to enable this lofty aspiration? What are these critical systems and how do leaders design and manage these systems to enable and support the appropriate behaviours and highlight instances where they cannot or are not, supported.

In any asset based enterprise the effective and efficient operation of your assets is a critical factor in the consistent delivery of customer value. Therefore we can consider our ability to maintain and optimise the performance of those assets as one of the critical systems within your business.

As a maintenance operational or continuous improvement professional you will still strive to increase the effectiveness of asset performance. Whether that is a single constraining asset or a linked sequence of assets on an assembly line or a service utility. The bottom line is that you will almost certainly need to do more with less.

In the Maintenance sense, this all has to be achieved in parallel with yet more pressure and demands on increasing environmental conformity, increasing energy costs and of course, zero accidents.

This article will address these perennial and topical issues by setting out to answer the following two questions:-

- What is the current perception of maintenance and asset performance in our business today?
- What do we mean by Maintenance Excellence and what can it contribute to the Enterprise Excellence agenda?

Enterprise Excellence and Maintenance Excellence

Perception of Maintenance

One of biggest problems still facing many of today's maintenance functions - and hence its managers and professionals- is (still) one of poor image and perception.

Let's imagine for a moment that you are the engineering director of a significant 'manufacturing plant', you go into the boardroom for the monthly site leadership team meeting and mention the word 'maintenance'. Does the chairman look at his watch and tell you that you have just three minutes to talk about this (frankly boring) subject?

Does the sales and marketing director simply look out of the window, because it's nothing to do with him or her? Does the finance director scowl at you as he or she sees it as an unnecessary evil and damaging cost burden, and does the production director get ready for a slagging match because he or she sees Maintenance (or the lack of it) as the root cause of most of the company's production problems?

Is this an exaggeration? Well may be so, but sadly in far too many cases it may still ring some bells.

So why is there this poor perception?

Maybe it's because the 'engineering director' have never sat down with his maintenance manager and thought long and hard enough about:

- who is our Customer?
- who are our Key Influencers?
- how should we go about changing these existing poor perceptions?

The first two questions are relatively easy to answer:

The customer is the manufacturing process and its supporting services. The key influencers are your ultimate sponsors- the production director and the finance director, quality director - and ultimately the managing director.

The essential first step to change these perceptions is for the maintenance function itself to reflect and define its own purpose / objective and hence contribution to the business drivers of the particular plant within that plant's enterprise excellence journey.

These outputs then need to be clearly articulated to the above key 'Influencers'- NOT just in terms of maintenance efficiency (cost down) but also maintenance effectiveness in terms of what it can deliver via the elimination of waste in all its forms (typically the overall equipment effectiveness (OEE) classic 6x equipment based losses, plus energy, environment and safety performance) to the business by aligning maintenance's contribution to the company's enterprise excellence journey.

The key point is that you can be apparently very efficient in your maintenance cost management but totally ineffective in its relevance to delivering the business drivers. You have to be excellent at both!!

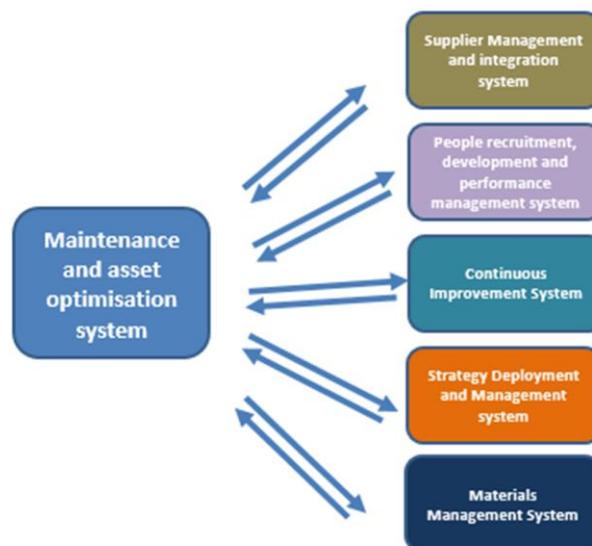
What can maintenance bring to the enterprise excellence table?

Let us first take a look of what Maintenance can bring to the enterprise excellence goals

Enterprise excellence system thinking's impacts directly on the *maintenance function and its delivery*:

- Traditional manufacturing (in theory) made it easier to release equipment for maintenance
- However, Lean Manufacturing requires **equipment** to be **available on demand** -so the successful adoption of Lean will lead to the revision of the traditional maintenance process
- The Maintenance function needs to implement plans to **integrate and evolve its methods** to meet the new demands placed on it by the enterprise excellence goals
- Enterprise excellence can help the **Maintenance Department** to deliver improved performance, lasting change and raise the profile of maintenance as a **value adding function** rather than an overhead/cost.

- If we agree that this represents a picture of how maintenance is integrated into wider systems in the business.
- Now consider what would be the **IDEAL BEHAVIOURS** required to make this work effectively?
- How do the current systems in the business enable or disable these Ideal Behaviours?



Enterprise Excellence recognizes there are three main categories of work as follows:-

- **Value adding activities** (Activities which, in the eyes of the customer make a product or service of value). The **Maintenance Response** needs to be directed at stabilising and extending component life by controlling contamination and causes of human error
- **Non value adding activities** (Activities which do not provide product or service features which the customer uses-this includes the 7 classic wastes.) The **Maintenance Response** needs to promote Focussed Improvement to analyse and remove unnecessary preventative maintenance, waiting time, and other equipment based wastes
- **Necessary non value adding activities** (Non value adding activities which are difficult to remove but are essential to the running of the operation). **The Maintenance Response** needs to engage Operators in routine, front line Asset Care and early problem detection. Also to improve ease of inspection and reduce time to repair

The key message to recognise in all this is that enterprise excellence and maintenance are both essential and tied partners



We recognise Maintenance Excellence when we see it (photo courtesy of Molex Shannon)

Maintenance must excel in its ability to improve value adding capability by delivering:

- Stabilised process/ equipment performance to reduce unplanned events and waste
- Optimised performance to reduce quality defects, cost and delivery lead times
- Engage the frontline line team with the equipment and process. Ideally getting people 'geeky' about the equipment and the process.

Operational Excellence can help Maintenance by the application of its proven tools and techniques to target the reduction of waste and non-value added activities by:-

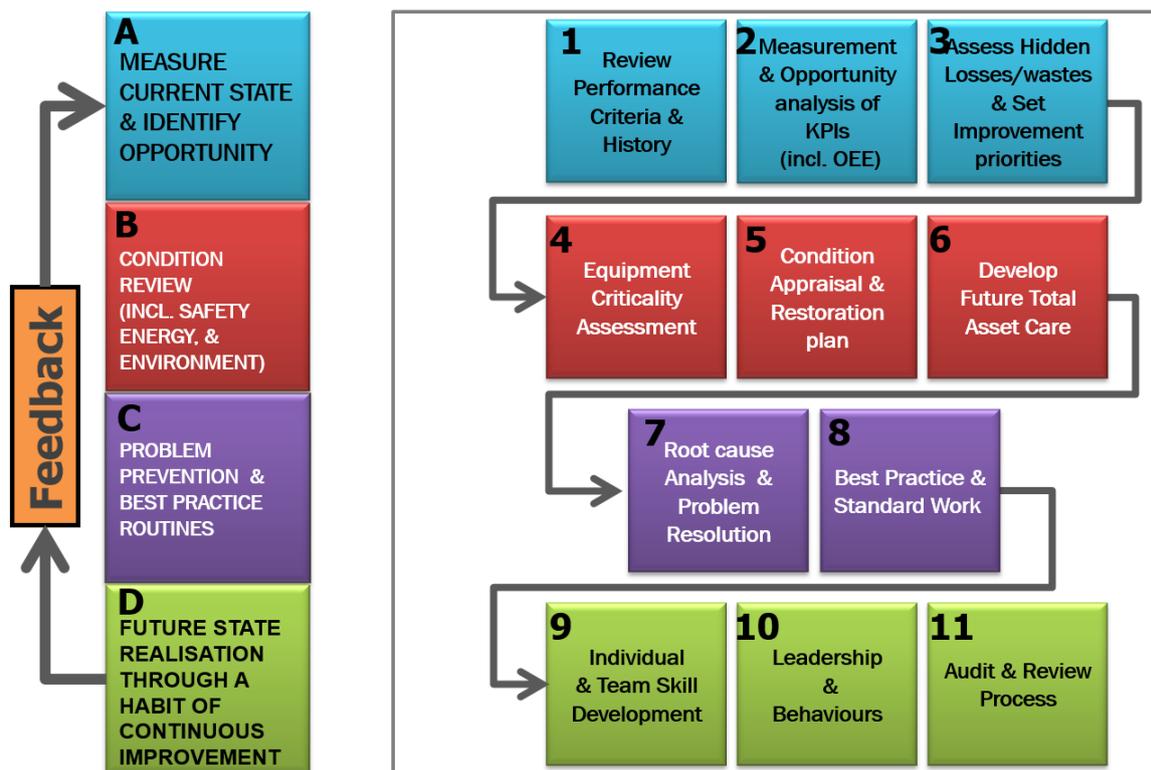
- Stabilising and extending component life through controlling contamination and minimising human error
- Analysing and removing unnecessary maintenance procedures
- Developing standard countermeasures to common problems
- Reducing the time to respond and repair
- Engaging operators in front line Asset Care
- Improving ease of inspection and early problem detection
- Tapping in to an energising team based 'can do' culture

So in summary, the maintenance leadership team needs to redefine their traditional thinking to one of aligning effective maintenance to the enterprise excellence agenda, and then present it to its customer (Production) as an essential 'Partnership for Change'.

There is no question that if we think through the above requirements thoroughly, there is a good chance that the 'I operate you fix' mentality and the implied 'I add value, you cost money' perception will be consigned to history books once and for all!

Where are you now with your Maintenance Strategy and its role as an enabling system in the business?

In order to position where you are now in your maintenance excellence journey it may be a useful task to complete the following exercise as a joint evaluation with operations – namely your internal ‘customer’



A systematic model for developing an effective System of Maintenance

Maintenance Assessment Exercise

Whilst we have developed structured, detailed and apparently, cost effective, approaches to our Maintenance Programmes here at our Plant, we still suffer from significant back-logs and resultant unacceptable performance, risks, losses and costs. Why is this the case? Maybe the following ten statements can give us an insight:

So, from your own experience, based here at your operations, please rank each of these ten statements below as follows:

Very True / Strongly Agree	Score 3
True / Agree	Score 2
Partially True / Partially Agree	Score 1
Not True / Disagree	Score 0

	Score
1. Our plant, machines and equipment may not be fit for our current and future process / production demands	<input type="text"/>
2. The tasks and routines defined by the maintenance programmes often conflicts with the experience of the person actually carrying them out	<input type="text"/>
3. Our maintenance staff were not involved in putting together these routines. So they have little ownership for the quality of the maintenance work carried out as described by the task	<input type="text"/>
4. Our operators were also not involved in the decision process either, so their 'front-line' experience is not included and problems remain	<input type="text"/>
5. Instead of measuring the reason why we do the task (i.e. to protect and/or improve the reliability / effectiveness of the asset) we only measure the direct cost of doing it. In other words, we are pre-occupied with maintenance 'efficiency' rather than asset 'effectiveness'	<input type="text"/>
6. We know that plant and equipment reliability is affected by both design weaknesses and the way in which it is operated. However, designers and operators were not encouraged to view 'maintenance' other than simply as 'a necessary evil' or function	<input type="text"/>
7. Production demands and load conditions continually change, but the maintenance programmes do not change because our people are not encouraged, or given the time to review and/ or update practices.	<input type="text"/>

8. The link between our plant and equipment condition and its performance/effectiveness is not reviewed on a regular basis

9. Production and maintenance seem to have different objectives and priorities and, as a result, resource and / or timing issues often conflict.

10. The ease of carrying out maintenance is not looked at, so tasks that are difficult and take a lot of time are sometimes not done or left to a shutdown

Total out of 30 Max

So what is your Benchmark Score out of 30?

Score Range	Significance
21 to 30	We have a major (critical) opportunity for improvement
12 to 20	We have significant scope for improvement
5 to 11	We are doing well, but can still gain some benefits
1 to 4	We are almost World Class
0	We are the World's Best!!!

<http://www.sapartners.com/tpm-maintenance-assessment-exercise/>

Developing System Thinking around maintenance and operational performance

In our experience, many companies initially fall into the top two ranges if they conduct the exercise with real honesty and healthy debate with both the maintenance representatives and their internal customer colleagues representing production / operations.

There is also strong evidence that revisiting the same exercise two to three years down the road of pursuing a systemised and relevant Total Productive Maintenance/Manufacturing (TPM) programme, the scores move into the five to eleven range and even one or two in the one to four range. We have yet to come across a string of ten zero scores!

Focused improvement programs such as TPM addresses each of these ten fundamental reasons for the gaps in our existing maintenance practices and recognises that it is the person carrying out the tasks who is the key, and the way in which he or she is supported is vital to achieve true cost effectiveness. Such programmes also firmly positions (maintenance and) asset maintenance as a key enabling system with the business.

For further information on the synergies between TPM and enterprise excellence please follow the links below to a series of videos and case studies.

John Quirke & Peter Willmott Sept 2015

<http://www.sapartners.com/videos/definition-of-tpm-by-peter-willmott/>

<http://www.sapartners.com/events/total-productive-maintenance-practitioners-workshop/>



Peter Willmott is a world-renowned and respected authority with over 25 years' experience on the application of Total Productive Maintenance (TPM) and has written and published two books on the subject.

Peter's list of TPM clients extends to over fifty international businesses including BAA, BNFL, BP Exploration, J&J DePuy, Lake Region Medical, Leo Pharma, Molex, Moy Park, Pfizer, Zimmer and Rolls Royce, Peter is an external lecturer for the University of Buckingham MSc degree in Lean Enterprise where he delivers the TPM, 5S and precision changeover Modules.



Partner S A Partners

John Quirke has worked with a number of blue chip pharmaceutical and life science corporations with responsibility for lean six sigma implementation across multiple sites within mainland Europe and UK. John is a certified Shingo Institute Facilitator and Shingo Consultant where his focus is on principle based system improvement.

John has significant experience in pharmaceutical, bio-pharmaceutical and medical device industries where he has supported systems and process improvements and root cause investigations. Over the last three years John has been working with Peter Willmott to develop Peter's systematic process of TPM implementation and align it to principles of Enterprise Excellence.