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Case Study: Optimising Estates Maintenance

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ABSTRACT

With the economic downturn and the inevitable cost cutting challenges that have been launched in order to make savings, maintenance and by extension asset management may seem to be the easy target. However, a penny saved now may result in many pounds being spent in the not too distant future to deal with the consequences of decisions not properly thought out.

The reality is that real cost savings can be realized if key asset management strategies and principles are implemented rigorously against the maintained assets. Time based maintenance has been proven to waste resources, material and time and in some cases have caused breakdowns instead of preventing them. Savings can be realized both immediately and in the long term by optimising maintenance activities.

Revising maintenance activities such that the tasks are prioritised based on risk and criticality is one key way to optimise maintenance activities. One company has taken steps to ensure that the maintenance work they undertake on their estates delivers value for money. This paper is a case study of the work done by a manufacturing company to optimise its estates maintenance in order to meet the challenges that the company faced – highlighting the successes and the lessons learnt.

KEYWORDS: Optimising, Maintenance, Facilities, Estates

1 ABOUT THE COMPANY

The company is located in the North West of England and employs approximately 15,000 persons. The core activities that the company undertakes are in the Manufacturing Industry. Typically the site has 400 buildings – where various key activities are carried out that supports the Company's Strategic Goals and Objectives.

The maintenance of the facility and the Building Services within each building has proven crucial to ensuring that the Business Objectives and goals are realised. A catastrophic failure to the Service in a building could result in a delay in programme delivery, which affects the ultimate customer and the company's business objective.

The company has recently started to implement an asset management programme to aid with the governance of their maintenance activities. Prior to the application of this process 70% of the maintenance activities were done as per manufacturer's recommendation and were done on a time based schedule.

2 BACKGROUND

Maintenance practitioners have proven over the years that time based maintenance waste resources, materials and time and, in some cases, has caused breakdowns instead of preventing them **/1/.** With the emphasis on being cost effective and demonstrating value for money, the temptation could be to make cuts across the board and agree to deal with the consequences as they arrive. The danger with that approach is that though it delivers the cost reduction it leaves the business exposed to 'unknown' risks.

The process of identifying where and when to apply efficiency measures must be done is a systematic and consistent way **/2/.** Understanding the risks associated with each maintenance activity undertaken **/3/** (or not) within each building is key to 1) preventing a catastrophic failure with potentially serious 'knock-on' effects and to 2) ensuring that the maintenance activities undertaken are optimised in order to assure Value for Money.

Applying PAS 55: 2008 and other key Asset Management Principles, the Company has embarked on the journey of optimising their estates maintenance thus ensuring that all work undertaken delivers value for money.

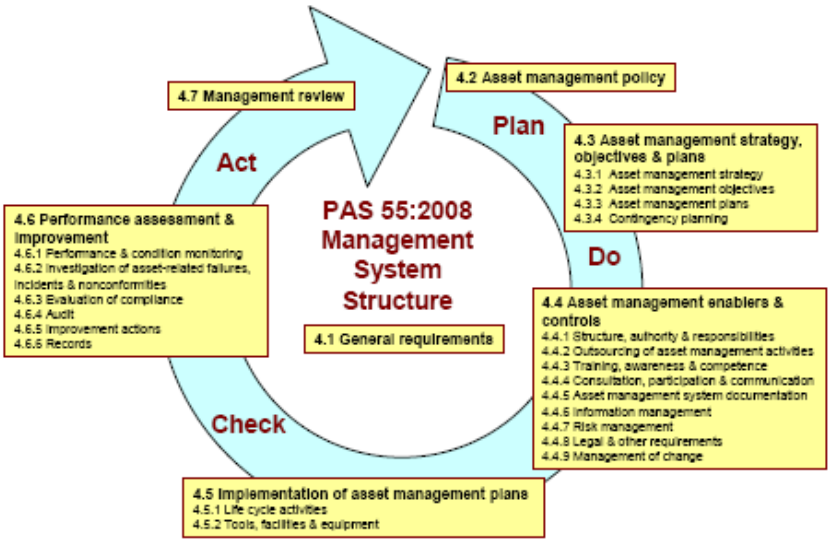

Figure 1: PAS 55:2008 Structure **/3/**

3 THE TEAM

The maintenance of the Estates is outsourced to a Service Provider. The implementation was driven by a five member team – three from the company and two from the service provider. The maintenance team was consulted and in some cases key individuals were enlisted such that the team could benefit from their knowledge and experience.

At various stages during the implementation the results were presented to various teams within the company to get their 'buy-in' or to inform them of potential changes as they were to happen.

4 METHODOLOGY

The process includes

1. Understanding the assets on site, their functionality and their importance to delivering the overall business objectives
2. Clarifying the business needs for the assets - taking into consideration the strategic footprint of the site and the strategic plan for each building
3. Reviewing current maintenance activities with the aim to cease all non-value added work that had no effect on the business – that is all activities that posed zero risk and had a low Health and Safety and Business Impact
4. Prioritising the buildings, systems and assets based on a criticality ranking **/4/**
5. Understanding the possible failures and the effect they can have on the production and their programme deliveries **/5/** (typical analysis included FMEA and What ifs)
6. Designing maintenance regimes that
    a. Seek to prevent catastrophic failures or reduce the potential of adverse effect to business objectives
    b. Ensure that the maintenance budget and resource is allocated on the right assets, in the right place and at the right time.

Severity	H&S	Score	Facility Impact	Score	Environment	Score	Reputation / Service Excellence Impact	Score	Business Impact	Score
0	No Injury or Damage to health	1	No Damage	1	Zero impact	1	No impact	1	No impact	1
1	Minor or First Aid Injury, minor damage or loss	55	Slight Damage	50	Minimal Impact	55	Slight Impact	50	Slight Impact	50
2	Minor injury, less than 3 days absence	175	Minor Damage	150	Limited Impact	160	Limited Impact	150	Potentially Significant Impact	150
3	'3 day' injury or illness, substantial damage or loss	350	Localised Damage	325	Moderate Impact	335	Considerable Impact	325	Significant Impact	325
4	Long term injury or illness	600	Major Damage	525	Severe Impact	550	National Impact	525	Major Impact	525
5	Fatality or disabling, Catastrophic Damage or loss	1000	Extensive Damage	750	Catastrophic Impact	800	International Impact	750	Massive Impact	750

Figure 2: Example of Risk Assessment Matrix used for Building Criticality

5 CURRENT STATUS AS PER IMPLEMENTATION TIMELINE

- The programme implementation timeline is four years
- We have been implementing the programme for just over a year
- We are currently implementing Stage 4 and Stage 5 in parallel. Stage 3 is 70% whilst Stage 4 is 10%.
- In 2010, based on the analyses carried out we have seen a number of proposals being made that saw significant savings delivered back to the business – £200k savings has been realized thus far, it is expected that at least £422k will be realized at the end of the programme implementation (2012/13)

6 TYPICAL RECOMMENDATIONS INCLUDE:

- Cessation of non-value added or non-critical maintenance activities
- Enhanced maintenance in areas that have been deemed to be critical based on analysis
- Increased focus on Predictive Maintenance and Condition Monitoring
- Reduction / Increase in the frequency of PPM activities undertaken
- Changing PPM schedules from time based to run hours where applicable
- Proposals for the implementation of equipment or plant redundancies to prevent the potential of single point of failure

7 BENEFITS

Some of the benefits realized from the implementation of the Asset management principles include:

- Assurance that maintenance budget is spent in the right place, on the right assets, at the right time thus the ability to demonstrate value for money as it relates to the Service Provision
- Risk based maintenance regimes being put in place to reduce potentially adverse effects on the business
- Improvement in the way their assets are managed, thus supporting their goals and ultimately supporting the company's goals and business objectives
- There has been a change in the way maintenance activities are carried out – with an emphasis on the introduction of new or alternative maintenance strategies or techniques (such as the introduction of condition monitoring and the installation of detection devices that would increase the warning time or P-F interval **/6/**)
- Increased efficiency and productivity – ceasing non-value added work, freeing up labour time and resources and redirecting them to key activities
- Significant savings delivered back to the business – at least £422k to be delivered at the end of the programme implementation (2012), £200k has been delivered as of January 2011
- A collaborative approach with the Company and its Service Provider

8 CHALLENGES

- The programme implementation is long term, over a period of four years, however, there has been the need to realize benefits quicker
- Documenting localised knowledge such that we could benefit from them
- Potential investment required to implement enhanced maintenance regimes and alternative maintenance activities
- Criticality had existed on the site prior to the programme starting but there was a lack of documentation to justify criticality decisions and there was no way to verify that these decisions was made in a consistent way
- Lack of complete asset data and work order history for some assets
- Limited resources
- Limited access to the operations team was based around their availability

9 LESSONS LEARNT

- The importance of the collaborative approach in getting the full benefits of the implementation of any programme
- Process is quite iterative as it is important to validate all proposals to assure that the recommendations were being made
- Change management processes (such as keeping employees informed) had to be implemented to manage fears/concerns associated with the changes being implemented
- Asset performance has been tracked since the changes made in 2010 were implemented. Additionally, customer feedback is being encouraged to help validate that the decisions made were beneficial and appropriate

10 CONCLUSION

The principles used to optimise maintenance are the same whether they are being applied to manufacturing asset or Building Services. The key is understanding and managing the associated risks whilst keeping maintenance spend low – that is finding that optimal point between risk and spend. The PAS 55:2008 other asset management principles used provided the framework for which this can be done successfully.

Typically when optimising maintenance strategies the focus has been on setting an optimum interval for Inspection or PM tasks, this process has allowed us to take a step back and challenge the actual tasks. For example rather than continuing visual inspection routes to look, listen, smell, touch and feel, alternative techniques have been / will be proposed based on relevance and affordability.

By starting the journey to optimise its estates maintenance the Company better understands its risks and has put measures in place to mitigate those risks such that the business' strategic goals and objectives can be achieved. Additionally the Company has realised significant savings (£200k), more is expected by the end of the programme implementation (£422k).

This process has proven that demonstrating value for money whilst responding to the demands of economic pressure is possible once one systematically and consistently applies the Asset Management principles that are currently available.

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