

Developing A Maintenance Strategy

Written by John Moubray, Aladon
Sunday, 01 June 1997 20:56

My first article in this series suggested that the following might serve as a general maintenance mission statement:

- To preserve the functions of our physical assets throughout their technologically useful lives
- To the satisfaction of their owners, of their users, and of society as a whole
- By selecting and applying the most cost-effective techniques
- For managing failures and their consequences
- With the active support of all the people involved.

However, it is one thing to decide on a mission. It is quite another to develop a strategy that will enable us to accomplish that mission. This article looks at the second step developing a maintenance strategy.

Given all the day-to-day pressures that maintenance managers face, the first question is, Where do we start? Should we buy a new maintenance management system? Reorganize? Invest in truckloads of condition monitoring equipment? Knock the whole place down and build a new one?

The answer lies at the beginning of the mission statement, which states that our mission is to preserve the functions of our assets. It is only when we have defined these functions that we know precisely what we are trying to achieve and also precisely what we mean by *failed*. Only then does it become possible to talk sensibly about the causes and effects of each failed state.

Once we have identified failure causes (or failure modes) and effects, we can assess how and how much each failure matters. Then we can determine which of the five groups of failure management options should be used to manage each failure mode (predictive maintenance, preventive maintenance, failure finding, run to failure, or a one-time change to the design or operation of the asset).

At this point, we have decided what must be done to preserve the functions of our assets. This process could be called work identification.

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When we have clearly identified what tasks must be done the maintenance requirements of each asset we are then in a position to decide what resources are needed to do each task. Resources consist of people and things, which means that we must now decide

- Who must do each task. A skilled maintainer? The operator? A contractor? The training department (if training is required)? Project engineers (if the asset must be redesigned)?
- What spares and tools are required to do each task, including tools such as condition monitoring equipment.

It is only when we clearly understand what resources are needed that we can decide exactly what systems we need to manage the resources in such a way that the tasks get done, and hence that the functions of the assets are preserved.

In essence, this process can be likened to building a house. The foundations are the maintenance requirements of each asset and the walls are the resources required to fulfill the requirements (people and skills, and spares, materials, and tools). The roof represents the systems needed to manage the resources (maintenance management systems).

Looking at maintenance requirements in the context of the functions of each asset (by seeking to preserve what the asset does rather than what it is) completely transforms the way in which the requirements are perceived. Such a review changes the size, shape, and location of the foundations upon which the maintenance enterprise is built. Clearly, when the foundations change, everything built on those foundations also must change.

The good news is that if the review of requirements the work identification process is carried out correctly, the foundations not only end up somewhere else, but also are usually much smaller than if requirements are determined by old fashioned seat-of-the-pants methods. Smaller foundations mean that the entire structure (resources and systems) built on those foundations also will be smaller.

Better yet, the initial focus on functions makes the whole enterprise far, far more effective.

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To summarize, the development of a maintenance strategy consists of three distinct steps:

- Determine the maintenance requirements of each asset in its operating context
- Decide what resources are needed to fulfill those requirements

Decide what systems are needed to manage the resources.

In other words, build the foundations first, then the walls, and then the roof. **MT**