My second and third articles in this series suggested that the development of maintenance strategy consists of three main elements:

- Determine the maintenance requirements of each asset
- Decide what resources are required to fulfill the requirements effectively
- Implement the systems needed to manage the resource efficiently.

It also was stressed that the only way to develop a truly viable, long-term maintenance strategy is to invest an appropriate amount of time and energy in *every* element of this process. Striking the right balance is an essential element of the responsible custodianship of physical assets.

The extent to which the physical and financial health of most organizations now depends on the continued physical and functional integrity of their assets means that the pressure on maintainers to exercise this custodianship in the most responsible fashion possible is becoming extraordinarily intense. Not only is this pressure arising from the expectations of our customers, but it is attracting the attention of regulators as well. Federal regulators such as OSHA, FDA, FAA, and EPA as well as state and municipal regulator bodies are not only demanding much greater precision and clarity in our asset management policies, but also asking us to be able to prove that what we are doing is sensible and defensible.

The sanctions which they apply if we are thought to have gotten it wrong are also becoming steadily more ferocious. For example, in the past few months, the British government has started exploring the idea of introducing a new class of crime called "corporate manslaughter," to be applied to the senior executives of organizations where fatalities can be shown to be the result of irresponsible custodianship of physical assets.

In this environment, maintainers need to raise their standards of custodianship to far higher levels than have ever been acceptable in the past. In this context, my fourth article in this series drew parallels between the custodianship of financial assets and the custodianship of physical assets.

It suggested that at present, industry devotes far more time and effort to the former than to the latter, despite the fact that the consequences of the incorrect custodianship of physical assets are often far worse than the consequences of the incorrect custodianship of financial assets.

This is partly because the processes used to manage financial assets have been under development since Pacioli invented double-entry bookkeeping more than 500 years ago. By comparison, the concept of planned maintenance has been in existence for only less than 50 years, while the most powerful maintenance strategy formulation technique--reliability-centered maintenance (RCM)--was first codified in the Nowlan and Heap report barely 20 years ago. Terms like computerized maintenance management system (CMMS) and predictive maintenance (PdM) have come into widespread general use only in the past 10 years. In short, industry is only just beginning to appreciate what must be done to exercise truly responsible custodianship of physical assets. We are still decades away from establishing physical asset management processes which are as widely accepted and rigorously enforced as those of our colleagues in the world of financial management.

Under these circumstances, it is not surprising that a great deal of experimentation is still going on in the world of physical asset management. Some of this experimentation is leading to developments that are of great value. In particular, one thinks of the explosive growth in PdM techniques, continuous advances in the CMMS field, rapidly growing understanding of the processes which cause systems to fail (including the part played by human error), and the formal incorporation of quantified risk in maintenance strategy formulation.

Unfortunately, some of this experimentation is also ill advised and often dangerous. This is especially true of attempts to cut the cost of formulating safe maintenance strategies. Most of these attempts are being made by well-intentioned people who are concentrating more on the cost of the strategy formulation process than on what it achieves. Given that we still have so much to learn about what really constitutes best practice together with the potentially horrendous consequences of getting it wrong, too much emphasis on short cuts right now is at best dangerous and at worst irresponsible. My future articles in the series will explore some of the most common pitfalls in this area. **MT**