



[Pruftechnik AG](#)

Asset Management? Or, Maintenance Management, Rebranded?

by Ron Moore

The development of PAS55, a British standard for supporting asset management, has had a very positive influence on various maintenance organizations. It's a good document, one which has been slowly evolving into ISO55000, scheduled for issue in early 2014. According to Terrence O'Hanlon, CEO of Reliabilityweb.com and Uptime magazine, and a member of the ISO standards committee for asset management, ISO55000 is a management systems standard for asset management.



The point he makes is subtle, but critical. ISO55000 is not an asset management standard; it is a management systems standard. It provides nothing on how-to-do asset management, rather it simply provides the what-to-do elements for a management system (i.e., it characterizes a business management system that happens to relate to managing assets), with an emphasis on managing value creation and risk. Clearly, it's a business imperative for companies to manage their assets effectively, including intellectual property, human and physical assets. However, most seem to be focusing their interpretation of PAS55 and ISO55000 on managing physical assets and maintenance, in particular. While maintenance is an essential element in asset management, it is not sufficient and does not appear to be the intent of PAS55 and ISO55000. Indeed, O'Hanlon states emphatically that, "Asset management is not about managing assets. It is about **delivering value** to an organization through the **effective utilization** of its assets."

BACKGROUND

With that introduction in mind, it's been my experience that most asset management strategies give far too much attention to physical asset management and maintenance, in particular, and not nearly enough attention to other issues that are even more critical to asset management, that is, **delivering value through effective asset utilization**. These strategies typically appear to be maintenance management strategies that have been "rebranded" as asset management strategies in an apparent attempt to make them more relevant to corporate executives. Asset management just sounds better at the executive level than maintenance management. This is particularly true for manufacturing plants and industrial operations. While maintenance is an essential element in asset management, it is simply not enough. The key questions that should be asked are: Does our asset management strategy substantially improve the performance of our assets in terms of their effective utilization and the value we create (i.e., quality production output)? At the lowest sustainable cost? With excellent environmental performance? At the lowest risk of injury and incidents? And perhaps other issues? The asset management strategies I've read do not answer these questions particularly well. And that is a major concern.



The Institute of Asset Management (IAM) has attempted to address some of these issues by publishing *Asset Management – An Anatomy*. It's a really good document, one I would recommend to anyone with an interest in the topic and in delivering value to the organization. For example, it states: "The tools and technologies may be helpful, but the engagement of the workforce, the clarity of leadership, and the collaboration between different departments and functions are the real differentiators of a leading asset management organization." I couldn't agree more.

At the same time, however, it seems the document is maintenance-centric. It states that, "The enduring objectives of the GFMAM (Global Forum on Maintenance and Asset Management) are: To bring together, promote and strengthen the maintenance and asset management community worldwide." The

inference here is that maintenance and asset management are very closely linked, perhaps even synonymous. Given the name of the forum, who will attend the forum? Given the enduring objective to promote and strengthen maintenance and asset management, who will help achieve that objective? It's highly likely, as we've often seen, that only maintenance people will take an interest in this issue and this is simply not sufficient! A better name for the forum would be the Global Forum for Asset Management, *with a mission to align marketing, design, procurement, operations and maintenance to deliver value through effective asset utilization*. This would convey, in simple terms, a very comprehensive approach to asset management and express a key objective of ISO55000, to deliver value.

The IAM document also has a section on reliability, availability and maintainability (RAM). Clearly, these are essential to effective asset management. However, a key issue is missing for manufacturing and industrial plants – operability. Without effective operating capability and practices, it will be very difficult for maintenance to effectively manage the assets and provide high reliability and availability. And, these must be designed into the system at the beginning. The operability element should be added to create ROAM – reliability in the design, providing for operability, availability and maintainability through the life of the assets.

Reinforcing my concern are all the webinars, workshops, papers and other communications that mostly link ISO55000 to:

1. Using a computerized maintenance management system (CMMS) or an enterprise asset management (EAM) system to do proper asset management;
2. Applying proper maintenance work management, planning and scheduling, preventive and predictive maintenance;
3. Using reliability centered maintenance (RCM) in asset management or a host of other tools for asset management.

Unfortunately, most of these are traditional maintenance management tools and do not address the issues around business requirements, or design and operating practices.

No doubt the formal issue of ISO55000 will be a boon to maintenance consultants. Perhaps this is appropriate. However, it will not achieve what is expected by focusing on maintenance. The defects that result in poor asset management typically come from marketing, design, procurement and operations, and these will overwhelm the ability of the maintenance department to effectively manage the assets for delivering value. At best, organizations will end up doing work they should not be doing in the first place more efficiently; work that could be eliminated with a more comprehensive approach to asset management. What a proper asset management strategy should be is a point of departure for senior executives to align their organizations for the effective utilization of the company's assets to deliver value and mitigate risk.

As noted above, *Asset Management – An Anatomy* states that: "The tools and technologies may be helpful, but the engagement of the workforce, the clarity of

leadership, and the collaboration between different departments and functions are the real differentiators of a leading asset management organization.” Let’s explore how we might do this.

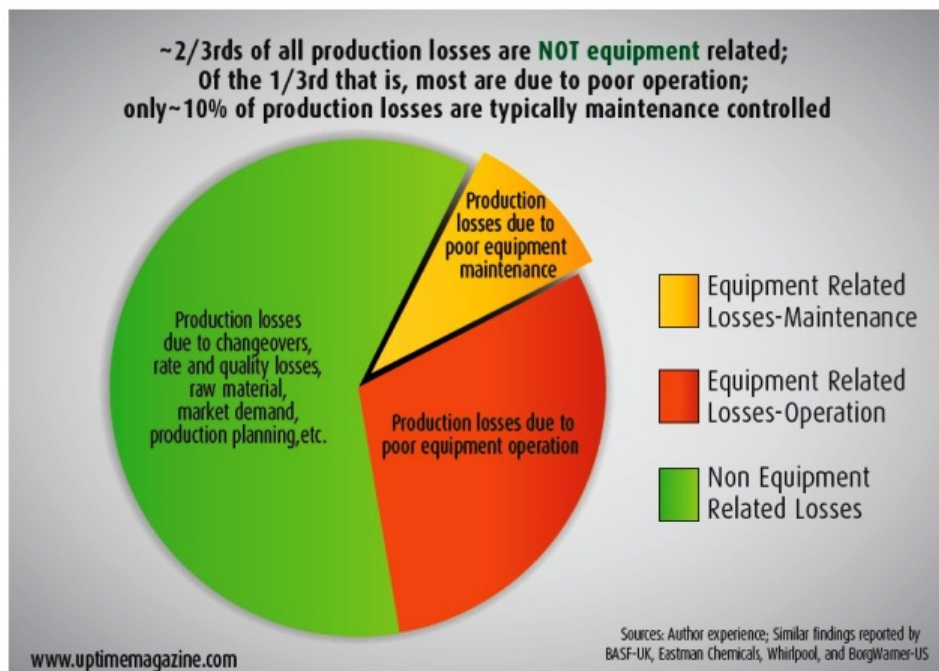


Figure 1: Causes of production losses

GUIDANCE FOR DEVELOPING AN EFFECTIVE ASSET MANAGEMENT STRATEGY

These suggestions are provided as guidance regarding the aforementioned issues and generally focus on large manufacturing and industrial operations (e.g., refineries, chemical plants, primary metal plants, paper mills, power stations, automotive plants, mining operations, etc.). While they may apply, these suggestions are not necessarily intended for institutional facilities (e.g., airports, hospitals, schools, railroads, etc.). Although ISO55000 describes many phases in developing an asset management strategy (e.g., need, plan, design, create, operate/maintain, renew/ dispose), I’d like to give particular attention to the phases related to need, design, operate and maintain.

Business Requirements for the Assets. An asset management strategy begins with the organization’s needs and its related strategy and plan for achieving its goals, and then supports delivery of the value associated with the plan. For any asset management strategy to be effective, it must first clearly define the business requirements for the assets in the coming years, that is, in one, five and ten years, and even longer depending on the business situation. This will require input from senior executives of the organization, marketing and sales, and perhaps others. This should be the very first issue that is addressed in any asset management strategy. After all, how can we develop a strategy if we don’t first understand the business requirements for the assets? For example, if I plan to shut down an operation in the next two years, it will have a

very different asset management strategy than if I plan to run the operation for the next 10 years and double the business volume every five years. All but one of the strategy documents I've read omitted this essential requirement. The latest draft of ISO55000 indicates that the asset management strategy is an input to the organization's strategy and business plan. Later in the section on planning properly, it states that the organization's asset management objectives should be derived from its strategic plan and should translate the organizational objectives into specific asset management objectives. Certainly, it's an input, but I strongly believe that the organization's strategy and business plans should drive the asset management strategy – that's where the asset management strategy begins.

Current Asset Performance vs. Business Requirements. Most of the asset management strategies I've read do not include a requirement to measure and/or analyze current performance against the assets' requirements. This analysis should include a gap analysis and appropriate plans for improving current performance. For example, if asset utilization (AU) or overall equipment effectiveness (OEE) is lacking, it should be improved before any additional capital expenditures are authorized for increasing capacity. The exception to this might be authorizing new capital for improved technology that is more efficient, or manufacturing new products that require a change in design to the equipment. The question is: Are we effectively using the assets we have? Before we authorize additional capital, we must assure excellent performance in existing assets. Manufacturing companies often authorize additional capital for increasing capacity when existing assets, if operated well, would provide for additional capacity requirements.

Capital Projects Role in Asset Management. Moreover, the typical asset management strategy does not include the role of the design and capital projects function in the management of the assets, particularly those that are planned, including the application of lifecycle principles as opposed to the more common approach of having the lowest installed cost. It will be very difficult to effectively manage new assets if they are poorly designed for the intended service and business needs, and fail to consider lifecycle cost and performance implications. This will typically require a new statement of corporate policy and the development and implementation of those standards and practices related to applying lifecycle principles. As previously noted, the business should not be spending money on new assets until the existing assets are performing at a high level.

Operations Role in Asset Management. Typical asset management strategies mention operations' role only in passing, if at all. But if you don't have strong leadership from operations in managing assets, you will not have good asset management or performance, irrespective of how well maintenance is done. In about 90 percent of the industrial operations I've seen, some two-thirds of production losses have nothing to do with equipment. These losses relate to other issues, such as product or raw material changeovers, poor production planning, rate and quality losses, short stops, inadequate raw material quantity and quality, and market demand. Of the one-third that is related to equipment

failures, some twothirds of that is caused by poor operating practices. For example, there are typically poor startup and shutdown practices, failure to operate the equipment per the standards required, running the equipment beyond its inherent capability, inconsistencies in operation across shifts, and a general lack of basic care and sense of ownership. Figure 1 illustrates this.

Reinforcing this view is the following data:

- The Japan Institute of Plant Maintenance (JIPM) reports that 70 percent of equipment failures are preventable by operators.
- A Fortune 500 manufacturer did 23 RCM analyses, identifying 1,864 tasks to minimize equipment failures – 1,260 tasks or 68 percent, were done by operators and 237 redesigns of process and/or equipment were required.
- A large chemical company did several failure mode and effects analysis (FMEA) at one of its plants, identifying 475 tasks to minimize equipment failures – 315 tasks or 66 percent were done by operators.

Given this data, how can you have an effective asset management strategy without operations leadership and operational excellence, particularly when maintenance only controls 33 percent of equipment failures and only 10 percent of the asset's total production losses?

Tools for Improving Asset Management. The typical asset management strategy makes little or no mention of the various tools that might be used for improving asset management and performance (e.g., Kaizen, total productive maintenance, RCM, root cause analysis, etc.). While condition monitoring is, at times, identified as an element in managing physical assets, it is not given sufficient prominence. Some 80 to 90 percent of assets have a random failure pattern associated with them, or a constant conditional probability of failure. The best way to manage random failures is to understand the failure modes and consequences of those failures, and then develop a comprehensive condition monitoring or inspection strategy to:

- Detect those pending failures early enough to manage their consequences;
- Improve the design for longer life;
- Design in redundancy so if the failure occurs, you still have functionality;
- Accept run to failure as a valid approach because the consequence of failure is minimal.

Of course, once a defect is detected, an excellent work management program, including excellent maintenance planning and scheduling, is needed to manage the consequences of the defect. This last issue is typically well covered by the asset management strategy of a given organization, but it's not nearly sufficient. Typically, more guidance is needed in the strategy document relative to the tools that will be used to assure effective asset management.

Executive Leadership/Sponsorship. Senior executives must play a strong leadership role in the development of the organization's asset management strategy, aligning the organization to its business purposes and providing the necessary resources, strategy and measures of success. What I have seen in

most organizations is executives giving permission for asset management and then bowing out, expecting that it will happen. Permission is not the same as sponsorship. Once executives approve the asset management plan, they have an obligation to support it. That is, they must provide adequate resources in the form of money, people and training/skill development to assure the asset management plan can effectively deliver the results and associated value for the organization. These resource requirements and measures of success must be clearly defined in the asset management strategy.

Partnership Agreements. Different functional disciplines (e.g., operations and maintenance, purchasing and maintenance, or other departmental groupings) must develop partnerships that articulate how they are going to work together, along with appropriate measurements to assure assets are well managed and that value is delivered with minimal risk and cost. It also must be recognized that as task interdependence increases, teamwork and collaboration become increasingly critical for organizational effectiveness.

Human Assets/Intellectual Capital. It would be an error not to mention the management of human assets or intellectual capital. ISO55000 and PAS55 have often been interpreted to mostly relate to physical assets. It must be highlighted that ISO55000 deliberately omits the word physical asset to be more broadly applicable to all tangible and intangible assets within the organization. My strong recommendation is that you view your people as your most valuable asset, ones that are trained, developed, brought to maximum capability and routinely engaged in process improvement using periodic, structured improvement time. Doing so will require a strategic training and development plan, an assessment of current capabilities relative to business requirements, a plan for closing the gaps related to assuring superior performance and the measurement of the results. The culture of the organization also must be addressed. People do want to change if given a compelling reason for change, if there's something in it for them and if they participate in creating the changes so they have a sense of ownership, control and purpose. All three "ifs" must be addressed in creating a better organizational culture and more effective asset management.

SUMMARY

Most asset management strategies make a good start at creating an effective strategy, but are insufficient to assure excellence in asset management in a manufacturing plant, even if followed in a very disciplined and rigorous manner. Most asset management strategies are missing or only cover superficially the:

1. Requirements of the assets by the business in the coming years;
2. Current performance or state of the assets;
3. Supporting role of design and capital projects;
4. Leadership role of executives and at the next level of operations and the criticality of excellence in operating practices;
5. Tools for supporting effective asset management;
6. Resources required for implementing the strategy.

How can you effectively manage your assets when these issues are not fully addressed?



Ron Moore is the Managing Partner of The RM Group, Inc., in Knoxville, Tennessee. He is the author of Making Common Sense Common Practice: Models for Manufacturing Excellence, 4th edition and of What Tool? When? A Management Guide for Selecting the Right Improvement Tools, 2nd edition, both from MRO-Zone.com; as well as Business Fables & Foibles and Our Transplant Journey: A Caregiver's Story, and over 50 journal articles.

©2014 Reliabilityweb.com