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By David G. Jahnig

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Common Fallacies in Maintenance

As pressure increases to improve plant performance, production technology and operations management become more complex. In addition, the current economy places severe restrictions on capital resources. In combination, these issues make the management of production capacity, availability, reliability and efficiency critical. Maintenance will play an increasingly important and strategic role in meeting corporate objectives.

Many fallacies exist relating to the maintenance function. These fallacies are likely to interfere with the clear perception that is necessary to make improvements in this area. The fallacies must be addressed as companies develop or improve Enterprise Asset Management (EAM) systems. By "fallacies," we mean statements that are often heard and widely believed, but are generally not true. By believing in these fallacies management will limit their success in the maintenance area and thus in meeting organizational objectives. We will present ten of the most common and severe fallacies and suggest ways to deal with them.

1. Maintenance management is not an issue for top management.

Top management does not generally address the topic of maintenance management. This is because maintenance is viewed as a routine, low-level activity. However, maintenance affects production levels, product quality and total costs. These are clearly strategic variables of vital concern. Top managers are recognizing the strategic nature of production, along with marketing and finance. They also must recognize the significance of maintenance in meeting corporate objectives.

2. A good maintenance manager gets his hands dirty to get the job done.

One of the problems with this concept is that many maintenance managers get a great deal of satisfaction in getting their hands dirty while pitching in to get the job done (generally making this happen by their own efforts). When this happens the job does indeed get done, but which job? The "Job" of the maintenance manager is not to fix equipment but to "Manage" (i.e. plan, control, organize, and motivate) others to fix the equipment and prevent failures. The gratification that comes from the instant feedback of "getting the equipment running" can be very addictive. However, when the manager accepted the management job he gave up some of the direct gratification that comes from his own labors and has to be gratified that the maintenance workers were able to get the job done more efficiently through the maintenance managers "management" efforts rather through his "fixing" skills.

One of the more distasteful aspects of the management effort is the seemingly endless amount of paperwork that comes with the job. In order to avoid the paperwork, the manager may have an irresistible urge to get personally involved in the maintenance activity. The commitment to improved detailed resource planning requires that detailed records be kept of both the jobs that have been performed as well as the jobs that will be performed. This will require that both the manager and the maintenance workers understand the importance of their individual responsibilities.

The reporting of information such as time and materials actually used is essential. The distaste most managers feel for paperwork is generally magnified many times in the eyes of the maintenance worker. This must also be recognized and addressed.

3. Maintenance is inherently an inefficient process.

The attention given in many maintenance departments is to get the equipment running and keep it running—effectiveness. Obviously, if one is not effective in performing the mission of any organization, it is unimportant how efficient the organization is. However, once the maintenance department achieves a certain level of effectiveness, emphasis must be given to efficiency so that effectiveness can be accomplished without wasting scarce resources.

One of the sources of inefficiencies is coordination between many different groups. Within the maintenance department coordination is needed between the various crafts. Coordination also is necessary between the maintenance department and the operations, stores, purchasing, safety, environmental protection, personnel and legal departments. These coordination efforts are extremely difficult, if not impossible, if no defined maintenance plan exists. It is the presence of such a plan that allows efficient use of resources by all concerned departments. In the past much of the blame for inefficiency has been placed on the worker and not the system.

4. The job of Maintenance is to respond to breakdowns and that can't be planned.

Although maintenance does respond to emergency repairs, it need not be their only job. As long as it is believed that all maintenance will ever have time for is breakdown maintenance that will be the only kind of maintenance work done. It is true that ALL maintenance cannot be planned and scheduled with 100 percent certainty. However, this does not preclude some maintenance activities from being restructured so they will lend themselves to preplanning and scheduling over a significant time interval. The objective of maintenance management should be to plan and control what can be; this will reduce the amount of unplanned and unscheduled work. If this is done, eventually additional time will be available to develop planned maintenance, especially preventive maintenance programs. Since each job must be planned, scheduled, performed, and evaluated anyway, it will add to efficiency and control to plan the work out before a breakdown occurs. This may also increase the availability and effectiveness of the production system.

5. I don't know what it will take to fix it until I tear the machine down.

It is true that the details of some repairs cannot be anticipated with 100 percent certainty. However, with adequate pre-job troubleshooting and analysis by experienced personnel and with the support of complete maintenance job history and other information, an "educated guess" can be made regarding the repairs needed. In many instances this will identify the necessary repair procedures, tools, and parts (work package) that will be needed before the job begins. The development of these work packages for use by the maintenance worker will minimize the amount of on-the-job crises. It is important to document which repairs were actually performed and which tools and parts were used. This feedback will aid in the completeness and timeliness of future planning.

6. Maintenance is not like a production process.

Although maintenance is not exactly like what most people think of production, i.e. an assembly line, in fact neither are most production processes. Much of current production and inventory control management techniques were originally developed in a custom job shop environment and that is exactly what a maintenance operation is. The following "equations" demonstrate this point.

THE PRODUCTION EQUATION

1. What do we have to make?
2. What does it take to make it?
3. What do we have?
4. What do we have to get?

THE MAINTENANCE EQUATION

1. What do we have to maintain?
2. What does it take to maintain it?
3. What do we have?
4. What do we have to get?

Although the questions and their answers are not identical and the way to get the answers may require some new approaches and perspectives, there are significant similarities.

7. Where maintenance believes it has too little MRO inventory the financial manager sees too much.

The fallacy here is primarily one of perspective. Maintenance tends to think about inventory in terms of discrete maintenance parts necessary to repair equipment. The financial manager tends to think about inventory in terms of aggregate dollars tied up and such aggregate performance measures as inventory turnover. The problem with the situation may not be having too much money tied up in inventory, but in having it tied up in the wrong inventory. As an example, too often there is little attention given identifying and disposing of "obsolete" items. These obsolete items come from two sources: (1) poor cooperation between engineering and stores when engineering changes are not coordinated with restocking activities, and (2) when equipment is retired and the parts stocked to support that equipment are not removed from stores and written off as part of the equipment retirement.

8. The storeroom never has what is needed when it is needed.

One of the problems with this statement is that it may be statistically invalid. Storeroom customers tend to have a greater recollection when a part was not available rather than the many times a part is available. In order to have a better basis than recollection for measuring storeroom performance, accurate records must be kept to establish the actual service levels. However, if the fallacy is true, several causes for stock-outs are common:

- No one in maintenance is telling the storeroom to stock the item.
- Storeroom is not reordering in a timely manner.
- There is inadequate storeroom security.
- Unreliable vendor delivery performance (unrealistically short vendor supplied lead times to get the contract).

One of the common and extremely inefficient consequences of this fallacy is that since the formal storekeeping system does not meet the needs of maintenance, maintenance develops a vast informal storekeeping system that it tries to control. This leads to double stocking of parts, additional storage facilities (including everything from bottom drawers to whole warehouses), informal inventory information systems (probably manual and not kept up to date), and the understating of financial assets (since these items are not part of the official Inventory). The irony of this scenario is that maintenance will often buy the same material it has in its informal inventory from the storeroom since the storeroom knows what is has, where it is, and can find it. The informal inventory is generally saved for a "rainy day." The problem with rainy days is they generally do not lend themselves to using incomplete and out-of-date information systems. As a result the informal inventory will eventually be thrown away because it is too much trouble and can't be found when needed.

9. Competitive bidding is the most cost-effective method for buying equipment and maintenance inventory.

The old business adage that applies here is that you generally get what you pay for. The lowest priced piece of equipment or spare part is not always the cheapest in the long run. The cost to operate and maintain the item also should be considered and is often difficult to quantify. Therefore, the O&M cost is often not determined or is underestimated based upon the vendor's

estimate rather than your own estimate. Even if quality and maintainability standards are met, the low item cost is looking at a small part of the picture. Competitive bidding will probably mean less standardization of equipment requiring stocking of diverse spare parts. Much more inventory dollars will be needed to ensure the same service level compared to a situation in which common parts are stocked. In addition, different tools and skills are often needed to maintain a diverse equipment base.

10. Computerize the maintenance process if you want, just don't interfere with me doing my job.

The problem with this attitude is that the person who makes such a statement is indicating a lack of complete commitment and affiliation with the EAM system. This person is not convinced the system will help him do "his" job. The system cannot be successful until this attitude is changed. One of the problems with changing this attitude is that the only way this person is going to become convinced is to see it for himself in his own area. The only way he will see it is to support it and give it time to prove itself. A difficult situation at best and quite typical of any change.

Conclusion

Fallacies are the result of tradition, expedience, a lack of understanding, pre-computer age rules of thumb, and prejudices. These factors will always be with us. They are often necessary in dealing with the volume of information and the increased pace of decision-making encountered in today's business environment. However, some fallacies may lead to significant inefficiencies and warrant reevaluation.

It is hoped that the preceding discussion of fallacies commonly encountered will be beneficial in creating opportunities for improvements in EAM. The discussion presented may be viewed as exchanging one set of fallacies for another. However, the fallacies presented generally prevent an organization from improving while the discussion may open the door for improvements.

About the author

For 30 years David Jahnig has been involved with many large industrial plant, facility management and public sector organizations. He has held a variety of engineering and management positions in maintenance, materials and environmental engineering. Also, he has held executive-level positions in several technology organizations and worked with several large and boutique consulting firms. He has published numerous articles, presented at international conferences, and conducted public and in-house seminars on maintenance management, materials management, total quality management, world-class manufacturing and just-in-time manufacturing. Jahnig has been instrumental in the development of business intelligence and mobile solutions for Enterprise Asset Management (EAM) and is experienced with the major EAM software systems. Jahnig can be reached at djahnig@iname.com

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