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The President's Corner

Your Hidden Plant—Claiming the Prize!

It seems that most maintenance & reliability professionals know that “There is *gold* in them thar hills,” when it comes to their plant operations. Yet it is chronically difficult to get the attention of senior manufacturing leadership to pay attention to better maintenance. When you argue for greater attention and resources, eyes glaze over and they tell you to go fix it if it needs fixing: that’s your job!

As a sidebar, this reminds me of the term “Maintenance Excellence.” Personally I shy away from using this phrase, because it is, at least from one point of view, an oxymoron. If one considers the term as a verb, then it is indeed possible to have excellent maintenance. But in most people’s minds the word “maintenance” means the *function* maintenance. That group of people charged to “keep the equipment fixed.” Maintenance will never be excellent as an independent function, as they are entirely at the mercy of the understanding and active cooperation of the production function. Maintenance can never be “Excellent” if production doesn’t allow them to be excellent.

What’s wrong with maintenance is less a matter of what maintenance does or doesn’t do, but what *operations* (maintenance *and* production) decide to do together. So being told to go and mind your own business—Make things better for god’s sake!—is entirely a non-starter. A surefire vehicle for ulcers and frustration.

So what is the key to unlocking the Midas treasure room?

Experience shows that there are actually two keys. The first is leadership that understands and cares about operations and *operational excellence*. Second is to have a concrete value proposition, one that puts improving equipment performance at the top of the list of priorities (behind safety of course!).

Plant and executive leadership may or may not understand or care about operational excellence. They may be more interested in buying and selling plants; in purchasing the raw materials at the lowest price; in “Happy Campers” in the workforce. We have found

if leadership doesn’t get it, you might as well bide your time to make the big bid for change. Priorities and leadership change, and once or twice in a decade, equipment condition and maintenance cost become priorities.

But when you have found this interest, key number two comes to the fore. You can get the right attention and investment if the money is there, and there is a clear roadmap to claim the prize.

How big is the prize, and how can you find out?

Dick Pettigrew at Rohm & Haas was taken out of his job in Engineering and placed in a role of championing maintenance. He had strong manufacturing leadership behind him, but needed a lever to get over 100 plants and 20,000 employees spread globally to be interested in maintenance improvement. *He knew he needed to know the size of the prize.*

He began with some research. He found that the best performing plants spent 25% less on maintenance than did R&H globally. Asset utilization was also much lower than expectations. Together the prize, as he described in financial terms, was worth nearly \$2.00 per share. And at a 15 P/E stock ratio, the value to shareholders was worth \$30 in share appreciation.

Because of the support he received, he was able to build an internal consulting organization of more than 20 people at one point to deliver on the value. And he did deliver the lower maintenance costs and higher availability. Availability increased by 4% over three years, for example. There is much more to this story, and it is a “best practices” example of how to lead for change.



S. Bradley Peterson
SAMI President

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We are a consulting group for industrial organizations working to improve profitability, efficiency and equipment reliability. Our Mission is to improve our clients’ production equipment health, by tapping the desire, creativity and dedication of all plant staff, and our vision is to be the firm consistently chosen by companies serious about making change; because our values of integrity, content knowledge, advanced practices and compassion for the workforce match the values of our clients.

The Operational Reliability Maturity Continuum: Part 8 What is a Plan Anyway? By Dave Army



In the last article I described the role of the Planner within the Work Management process. I never managed to describe the “perfect” work plan. I’ll attempt to achieve that now.

If you remember from the last time, the Planner plays a key strategic role in the Work Management process. The responsibility of the Planner is to look into the future and plan for activities down the road. Unless there’s a flat out emergency, planners should never involve themselves in day-to-day activities. The first line supervisor can more than adequately take care of that assignment.

So, what is a plan? Let me set a few parameters for this discussion. A plan is not to be confused with a schedule. Schedules are a group of planned activities (corrective, preventive, projects...) that are allocated to specific time periods, for the purpose of sequencing, timing and execution. Work plans are the specific actions required to accomplish a work activity.

Now, there are many different opinions as to what constitutes a work plan. I once conducted a planning workshop with a client where I split the group into two teams and sent them off to plan the same two jobs. The group consisted of individuals with varying degrees of maintenance and operations experience. The results for the same two activities varied greatly, much to their amazement. In fact, we spent the better part of the afternoon debating how those two specific jobs should have been planned. This exercise was extremely instructive to the group as it demonstrated, and became apparent to them, that there should be some level of guidance provided to planners to ensure consistency of planned activities.

Now I’m sure that we’ll all agree that there are levels of planning. Dave’s 1st Law of Planning states “**Let the plan fit the crime.**” In most mature organizations, it’s OK to consider the “skill of the craft” in planning work activities. For example, in most cases I wouldn’t expect any planning on a Work Order requesting the adjustment of packing on a valve, unless there were extenuating circumstances. However, if the Work Order describes a broken pump shaft, then the level of planning increases, as you might well imagine. What I’m attempting to tell you is that all activities need not enjoy the same level of planning.

The 2nd Law states “**Don’t let yourself become an expeditor.**” The whole idea behind planning and scheduling is to extend the planning horizon in order to enable parts and materials to be ordered in a timely manner. Give yourself plenty of time to obtain the parts. Enroll the buyers and warehouse in the endeavor. Don’t ever, without endangering your livelihood, allow a Work Order to be placed on the schedule until the required parts are available.

Lastly, the 3rd Law states “**If you need support, you’d best identify it and make sure it’s available.**” Not all work activities can be accomplished solely by one craft. Often some sort of support is required to accomplish an activity. Nothing annoys an electrician more than having a mechanic ask for support on the day that the activity is being performed. This is especially true if the electrician has already planned his day out. Work activities can require all sorts of support ranging from craft, specialty contractors, heavy material, lifting equipment, scaffolding, operators, etc. Part of the

planner’s responsibility is to have those specific support requirements identified and communicated well ahead of time. Think of the planner as an orchestra conductor. In a beautifully played symphony, all the musicians combine at the right time to make the music. The same applies to a well conducted work activity.

Here are some ideas as to what a work plan should contain:

- Estimates
 - o Best guess
 - o Other input
 - o History
- Detailed instructions
 - o May already be contained in a job library within your CMMS tool
 - o May have to be created
 - o May not be required – 1st Law
- Other documents
 - o Drawings
 - o Equipment manuals
 - o Etc.
- Parts or special materials
 - o Location
 - o Availability
- Safety, regulatory or environmental concerns
- Post maintenance testing
- Specific requirements
 - o Staging
 - o Cleaning
 - o Lock-outs
 - o Contractors
 - o Permits
 - o Special equipment
 - o Other crafts
 - o Equipment availability
 - o Special tools
 - o Rigging
- Etc.

This is certainly not a complete list. Each facility, depending upon the experience and skill level of the craft as well as the complexity of equipment will have differing levels of Work Plan content. This is only meant to provide some idea of the requirements that most craft desire.

Again, as always, these ideas are from my perspective and are subject to debate. If you’d like to challenge me, or better still, discuss tactics to move from reactive to proactive, please give me a call or drop an e-mail. I welcome your input.

Zen and the Art of Planning?

By Ralph Hedding, PE



So I guess I borrowed the title to this in part from Robert Pirsig, author of the Motorcycle treatise concerning a guy's philosophical learnings about people and himself based on how they cared for their "rides." Re-reading this book provided a previously undiscovered metaphor for my understanding of organizations by viewing how they perceive the value of maintenance planning. There is a great deal of analytical insight that can be gained looking at organizations through this function.

Bringing this back a bit from the metaphysical, organizations that value planning and practice the art well, have better productivity out on the shop floor -- period. That's the conclusion, and it has been backed up many times through countless assessments we have performed in a variety of industries. Maintenance departments struggle with finding enough internal capacity to handle all of the work that is on their plate (measured by backlog levels). It's all a matter of productivity. It's not that the maintenance craftspeople aren't working hard; the root cause is usually that barriers have been put in their path that precludes performing at a high level of output. Searching for parts, finding drawings, looking for those special tools and equipment, waiting for operations to clean out the unit, arranging for special permits are all a part of a crew's day when planners are not being effective, or there are no planners at all.

Over the past decade, the concept of the "self directed team" has been attempted at many manufacturing facilities. The philosophy that maintenance people are more productive when they plan their own jobs since they will "own" the plan, and that this enriches their workday, has not returned the expected results. In most cases, this has been used as a rationalization for eliminating maintenance planning and supervisory positions. If done properly, with a lot of training, patience and guidance, this scenario can work. In those rare instances where we have seen success, the self-directed team comes to their own conclusion that one or two of the craftspeople on the crew will spend their time preparing the requirements for the job for the rest of the crew. Sounds like planners to me.

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U p p e r m a n a g e m e n t continues to press their maintenance managers for higher productivity levels, better equipment availability, and lower costs. All too often, during tough economic times as we have been experiencing lately, it is this same set of executives that mistakenly dictate that headcount is to be cut and the first on the chopping block is the planning group. To their dismay productivity levels within maintenance suffer and the unit production cost actually becomes greater than what it had been.



Most facilities that we assess have planners in their maintenance organizations. However, most do not use them well. Too often, planners are reduced to being "gophers" for foremen. One recent assessment client had two planners assigned to an area with about 12 craftspeople. All of the work was being charged to blanket work orders and no planning was being performed. We never did figure out how the planners spent their days. The productivity of their maintenance group was about 26% of the time on wrenches.

Then there are the other extremes. We have seen maintenance groups where every work order goes through a full planning process, down to the last nut and bolt needed to perform the work. An efficient planner should be able to provide planning for 20 to 25 craftspeople. In this organization, there was about a 10 to 1 ratio. This uneconomic situation provides the lesson that planners should be used as value adding resources. You can't afford to misuse this resource. If the time and cost associated with planning a job is determined, the total cost of doing the job including the planning cost should be less than the cost of the job being done unplanned. There is a balance; some jobs are too small to be considered for planning and are more economically executed by the mechanic doing the full scope. These are more often the minor one to two hour variety where little if any materials are required; a "just do it" job that are good fillers for slack schedules.

So paraphrasing Mr. Pirsig's Zen dissertation, if you want to know how well a manufacturing operation is being managed in general, go look at how the maintenance planners are performing. The correlation is amazingly direct.



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We are now working with a global energy company's exploration and production unit. Our strategic planning effort has identified the size of the prize here at over \$60 million. And the list goes on. Every plant and company we work with have similar stories.

In our next issue, we'll discuss how to quantify these benefits in a way that executive leadership gets excited about!

	Return on Equity	Return on Net Assets	Earnings per Share
Asset Utilization +5%	+3.5%	+1.5%	+\$1.3
Maint/RAV Cost (\$55MM)	+1.5%	+0.8%	+\$0.6

** Chart courtesy of Dick Pettigrew, Rohm & Haas*

We've Moved!!

Please update your records with our new address:

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All of our phone numbers have remained the same.