

Maintenance Work Planning & Scheduling

So you think you plan your maintenance work?

It's amazing how many companies we see that are sure they are doing planning and scheduling, but when we dig under the surface we see that what they are actually doing is scheduling not planning. Or even worse, all they are doing is actually just Work Order launching No planning and no scheduling. As you can imagine, the results are not good. Everyone is chasing parts, jobs not completed on time, and forget about data collection from WO closing!!

Hopefully this doesn't sound like your organization, but if it does or if you would like to know what constitutes effective planning and scheduling then please read on.

Why you need good planning & scheduling.

As mentioned in his Planning & Scheduling handbook, Doc Palmer's study of the industry observed that without planning, the effective utilization of an average maintenance workforce team is only 28% (cross industry average). While if planning is introduced and properly used in that organization, then this wrench time is increased to 55%. What it means of course is that you would get better value of your maintenance organization if you are doing planning. For a crew of 4, if each is at 28% utilization, then the total effective working time is only at 112% level. The same level can be met by introducing a proper planning process to the team of 2 persons (2 persons x 55% each). This is almost doubling the capacity at $55\% / 28\% = 1.96 \rightarrow$ a 96% improvement. One properly equipped and trained planner can plan for up to 20 to 25 technicians. If we have a 25 people maintenance crew, it would be like having 49 people (an extra of 24 more people) in the crew. Thus, increasing the capacity of your maintenance workforce without adding a single person.

And that's not whole story yet. Numerous other studies have also been conducted that show the impacts and benefits of good planning and scheduling. A job that is unplanned usually takes longer, uses more parts and materials, entails un-anticipated delays, requires resources that had to be brought from other work, all these resulting in higher costs for the work.

These studies show that Unplanned Maintenance work is approx 1.5 times more expensive than planned work, and Breakdown Maintenance is between 3 – 9 times more costly, in fact a one client recently they calculated the cost of a breakdown job to be almost 12 times the cost of conducting the repair during a planned regular service. Just think of the impact that could have on your Maintenance Budget, the potential savings from effective planning and scheduling are huge.

So what is good planning and scheduling?

First and foremost organization must understand that effective maintenance work management comes down to six key steps:

1. **Identify**, this is where the need for maintenance work is first found, it can be as a result of other maintenance or inspections, engineering, or even operators. However one of the common pitfalls we find is the accuracy or meaningfulness of the information provided by operators, all too often we find fault descriptions like “machine doesn’t work” or “machine noisy” but with no indication of which part of the machine is noisy or not working
2. **Plan**, this is really all about the **WHAT**, what work has to be done, in what sequence, with what skills, using what materials and special tools, requiring what technical information such as manuals or engineering drawings, and following what safety precautions. In summary planning is preparing the technical aspects of the work to be done but it also is involved in ensuring that the data captured in step 6 below, is both accurate and timely and that any follow up activities identified are properly actioned.
3. **Schedule**, this is all about **WHEN**, scheduling is a matter of availability, when are all the parts available, when can we get access to the equipment or plant from Production, when will we have the required skills available. It requires thought with regards to planning and scheduling horizons, balancing workload, backlog and net capacity of the maintenance teams, and determining priorities and criticalities for each of the many work orders.
4. **Assign**, is about **WHO**, usually this step is concerning allocating the work to an individual or team to be responsible to execute the job. In the planning stage we determine the skills required, in the assign we determine who has those skills and would be best suited to carry out the work, also taking into considerations such as on the job learning opportunities.
5. **Execute**, this is about actually **DOING** the job or where the “rubber hits the road”. Well trained, motivated team players keep the maintenance process revolving.
6. **Closure**, is about **LEARNING** from the job isn’t finished until the paperwork is done, again one of the most common failings we find is the failure to close out work orders correctly. At the very least, the maintenance work should be incorporated into the equipment history, but ideally we should be looking for more than that, we should try and capture accurate data in terms of material and time required to complete the work, the accuracy of the original plan (to improve subsequent plans), what was actually found and the work that was done, are there any follow up tasks required (eg temporary repair but must be replaced in 2 weeks etc), what was the failure mode, and finally could we have done something which would prevent this from occurring?

These 6 key steps can only work smoothly to achieve good results if it's lead by a good planner (or a team of good planners) capable of managing the maintenance crew in executing efficient work management process by keeping the scheduling pipeline full of well planned and value added work. Good planners normally do this by:

- Visiting job-site and understanding the work required
- Developing accurate job plans for all planned work
- Eliminating any lost time
- Eliminating unproductive "trips"
- Identifying repair parts before the work commences
- Establish and maintain equipment technical information
- Identifying and alerting reliability function of recurring maintenance problems so that maintenance strategies can be maintained and updated

So do you have good maintenance planning & scheduling practices

So how can you tell if your organizations is doing good job in establishing the planning & scheduling culture? Below are some indications of good planning & scheduling practices. Do you know if your organization has these characteristics?

- A plant equipment register exists that lists all equipment in the plant
- Over 90 percent of maintenance work is covered by a standard written work order, standing work order, PM checklist, or routine maintenance
- Over 80% of all maintenance work is planned by planner, supervisor, or other person at least 24 hours or more before being assigned to trades
- Non-emergency work requests are screened, estimated and planned (with tasks, materials and tools identified and planned) by a dedicated planner.
- Realistic assessments of jobs are used to set standard times for repetitive tasks and to help schedule resources.
- A priority system is in use for all work requests / orders. Priorities are set using pre-defined criteria, which are not abused to circumvent the system.
- Work for the week is scheduled in consultation with production and is based on balancing work priorities set by production with the net capacity of each trade, taking into account emergency work and PM work.
- All shutdowns are scheduled using either critical path or other graphical methods to show jobs, resources, time frames and sequences.
- Work backlog (ready to be scheduled) is measured and forecasted for each trade and is managed at less than 3 weeks per trade.
- Long term plans (1-5 years) are used to forecast major shutdowns and maintenance work and are used to prepare the maintenance budget

If there is a specific question you need to clarify on these good practices, please write to us. Or better still, if you would like to understand & learn more about planning & scheduling, you are welcomed to join us in our planning & scheduling training course featuring the planning game to enhance the learning experience. Please contact us at our address below.

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