Written by Randy Heisler, Life Cycle Engineering, Inc.
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Management, planners, maintenance, and operations need to know their roles to achieve excellence goal.

Many companies have the desire to achieve maintenance excellence but lack the discipline to make it happen. Once the mechanisms are in place for maintenance excellence, maintenance and operations personnel often still do not understand what must happen to achieve the goal. Simply buying a computerized maintenance management system (CMMS) and turning it on will do only a portion of what is needed to improve the maintenance process.

Maintenance personnel, planners, and maintenance and operations managers, with no training on their roles and responsibilities, can be confused about the overall objective. The following elements of discipline must be put in place when heading down the road to maintenance excellence.

Management discipline

Management, especially upper management, must set the tone for what is usually a significant culture change in the entire organization. A few important questions must be asked:

• How will jobs change from this point forward?

• How will we drive this effort in the right direction?

• What is the first step?

The answers to these questions may vary, but a good first step is to identify the goals of this effort. All parties involved must agree on the metrics that will be used to measure progress. These metrics must be just as important as Safety, Quality, and Output standards. (See accompanying section " Performance Metrics .") Attention must be given to these new metrics, which in the end support all of the company's standard measurements of performance.

When managers and supervisors are held accountable for their performance against these new measurements, an important message is sent. This message will quickly filter down to even the lowest level. People tend to do what makes their bosses happy. Management must clearly identify what those things are and the expected behavior.

The focus must change from how many widgets did we make today to how reliable was our equipment today? What delays are eating our lunch? Do we have preventive and/or predictive maintenance tasks in place for this equipment? What percentage of our PMs are we able to complete? Which equipment needs to be restored so that we can maintain it? Management must demand detailed action plans that will eliminate recurring equipment problems.

How effectively are we planning our maintenance? What is our backlog of work? What percentage of our maintenance is reactive? The answers to these questions will provide management with the important information needed to manage the organization toward the ultimate goal of maintenance excellence.

Planning discipline

Management also must have the discipline to dedicate personnel to the planning function and provide them with a tool—a CMMS—and the support to utilize it to its full potential. This step is critical to achieving the goal of maintenance excellence. Once this mechanism is put in place, planners must take on an important role in the organization.

In order to fulfill this role, their position must be defined and guidelines developed on how equipment information will be collected, work will be planned, history will be captured, and performance will be measured. There must be a disciplined approach to planning work. Planning must provide the maintenance department with detailed information, material, tools, and equipment requirements to perform the work. Accurate man-hour estimates are needed to efficiently schedule the day or week's activities.

Close coordination with operations is key to getting their cooperation and equipment access for PMs or repairs. Planners must facilitate meetings with operations and maintenance to negotiate the scheduling of activities. Everyone in the organization must have the discipline to attend these important meetings. Management must stay focused on maintenance excellence in order to drive this needed teamwork.

Another important facet of disciplined planning is the manner in which work order feedback data is collected. Entering feedback information into the CMMS is critical so that equipment data is readily available and accurate. All worker time must be reported against work orders. This data will be needed to answer the new questions that management will be asking about failures and overall performance.

Planner performance must be evaluated. Are jobs being estimated accurately? Are assignments of PM development being completed? Is completion information on work orders being entered properly? Are periodic PM audits being performed and frequencies adjusted as needed? A combination of audits and metrics can be used to measure planner effectiveness: For example, planned vs actual, number of PMs created per week, or completion code accuracy.

Process discipline

In order to clearly identify how people should function in their assigned roles, the maintenance process must be mapped out. Once again, all parties involved need to be part of this effort. With the business process identified, there will be no question or excuse for noncompliance.

Maintenance then can adopt the position that no work is performed without a work order. This can be clearly defined in the maintenance process flow chart. Setting this discipline in place from the very beginning will eliminate confusion and excuses. The work order review and approval cycle also should be identified in the process flow, as well as planning, execution, and feedback flows. It is best to start with a high-level flow chart and then develop subprocess flow charts where necessary (Fig. 1).

These flow charts provide the basis on how the business of maintenance will operate in the facility. This is a key step and will provide everyone with a clear map toward maintenance excellence.

Maintenance discipline

The maintenance group may feel as if it is being driven down a road of endless red tape and paperwork. Some may struggle with the concept of work orders. This area will require the highest degree of discipline. Switching from what is often a list of jobs in a notebook to a formal work order system can be a daunting task for some longtime maintenance supervisors.

Progress in this area often can be gained by teaming up the maintenance manager and the planner to decide which jobs need to be planned and to jointly work on creating the schedule for the coming week. Once the jobs are planned and scheduled, the primary concern of the maintenance manager is execution and feedback.

It is important that every work order be issued to the maintenance technicians and that every work order be returned and filled out with completion or status information. An area or bin should be provided for these returning documents so there can be no excuse as to why they were not returned. The maintenance manager should review the returned work orders and demand accuracy and completeness from the maintenance technicians.

The completed work orders then must be returned to the planner for review and the entering of closing information and time reporting. The technician or supervisor can enter this information into the CMMS, but standardization of data entry is often at risk.

Properly entered failure codes are needed for equipment failure analysis. Failure in receiving and entering work order information will lead to an incomplete or broken feedback loop (Fig. 2).
Planners can help in this area by providing worthwhile information on the work orders so the maintenance technicians will realize the work orders have value and will treat them accordingly. Maintaining the discipline to complete this loop will form the basis for a fully utilized system.

Operations discipline

Operations personnel must now enter a work order to request maintenance on the equipment in their area. It will be difficult at first but must be accepted as the method in which to get work done by the maintenance department.

The work to be done must be clearly defined so planners are not tied up investigating every job for minor details. It should be understood that the better the information, the more efficient the maintenance department can be in addressing the request in a timely manner. The operator can gain twofold by cooperating with maintenance: The equipment will be well maintained and the operator can monitor the progress of the request by using the CMMS.

Another operations responsibility is to work with maintenance to identify and maintain an accurate priority list. Taking the time to communicate and keep this list accurate will ensure that maintenance is working on the right things, not just the request of the day. The CMMS can be used to show if discipline is lacking in this area.

Turnaround/outage planning discipline

When planning a plant turnaround or equipment outage, the team members who are developing the plan and schedule must be willing to spend the time required to develop realistic estimates and expectations. Too often these plans are put together with the intention of giving management something that looks good, with little intention of following the plan once the outage has begun. Often, financial decisions are being made based on these plans.

It is important that the same discipline that is used to complete the work be in place to plan the work accurately. Lacking this kind of discipline will likely cause cost overruns and disappointing results. Management must realize the importance of this effort and allocate resources and time to achieve this important part of the turnaround or outage.

The road to maintenance excellence can be rough and winding, but with the right discipline at the wheel, your final destination is well within reach. **MT**

Randy Heisler senior consultant, maintenance strategies, at Life Cycle Engineering, Inc., 4360 Corporate Rd., Suite 100, North Charleston, SC 29405; (843) 744-7110

PERFORMANCE METRICS

Safety

- Lost time accidents
- Accident frequency

Quality

- Percent diversion
- Percent rejects

Output

- Tons/hr
- Cost/ton

Maintenance

- Percent unscheduled
- Percent PM completion
- Backlog
- Percent delay

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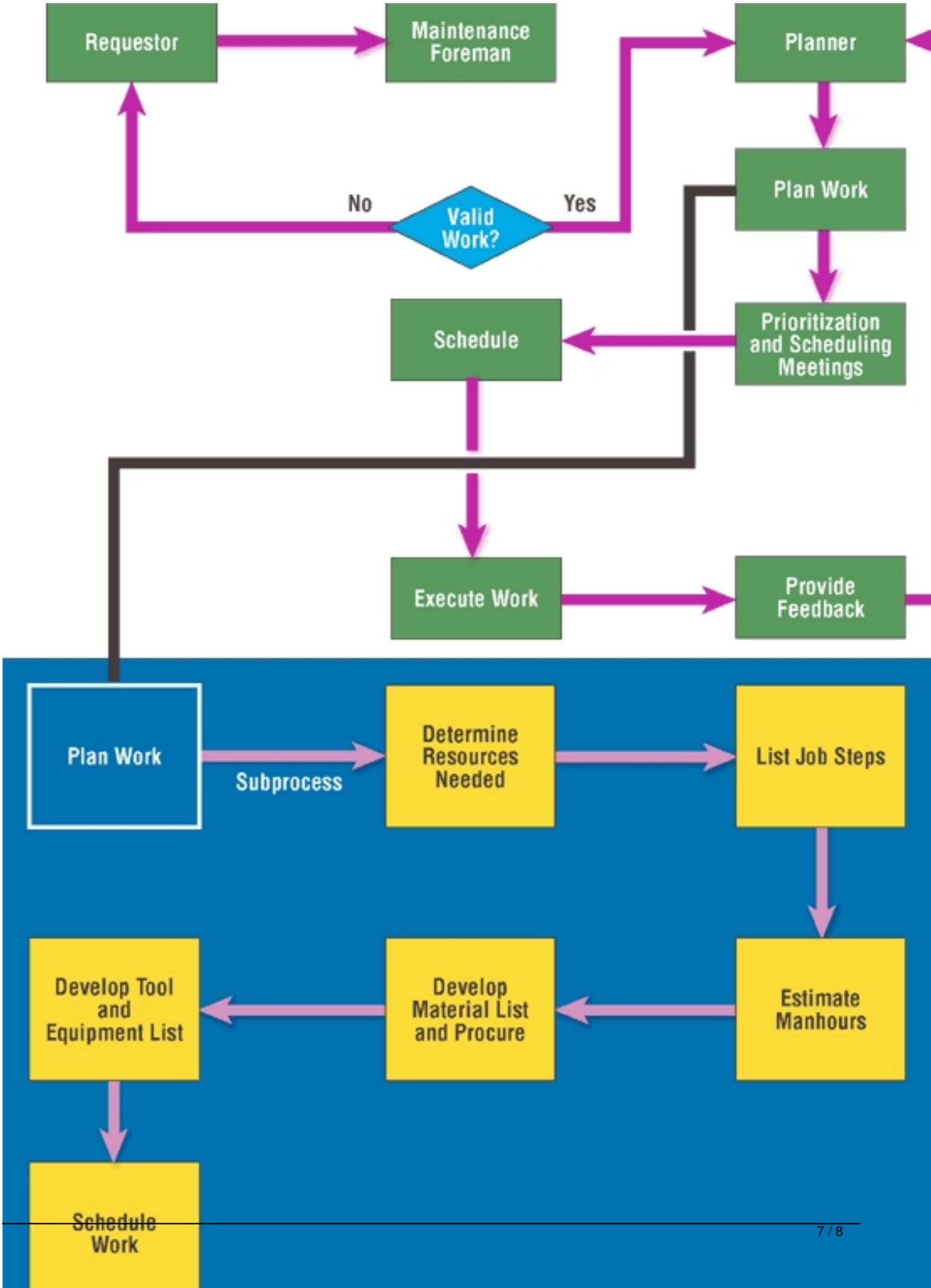
Maintenance Process Flow Chart


Requestor
Maintenance Foreman
Planner
Plan Work
No
Valid Work?
Yes
Schedule
Prioritization and Scheduling Meetings
Execute Work
Provide Feedback
Plan Work
Subprocess
Determine Resources Needed
List Job Steps
Develop Tool and Equipment List
Develop Material List and Procure
Estimate Manhours
Schedule Work

Programming the maintenance process provides the basis for how the business of mai

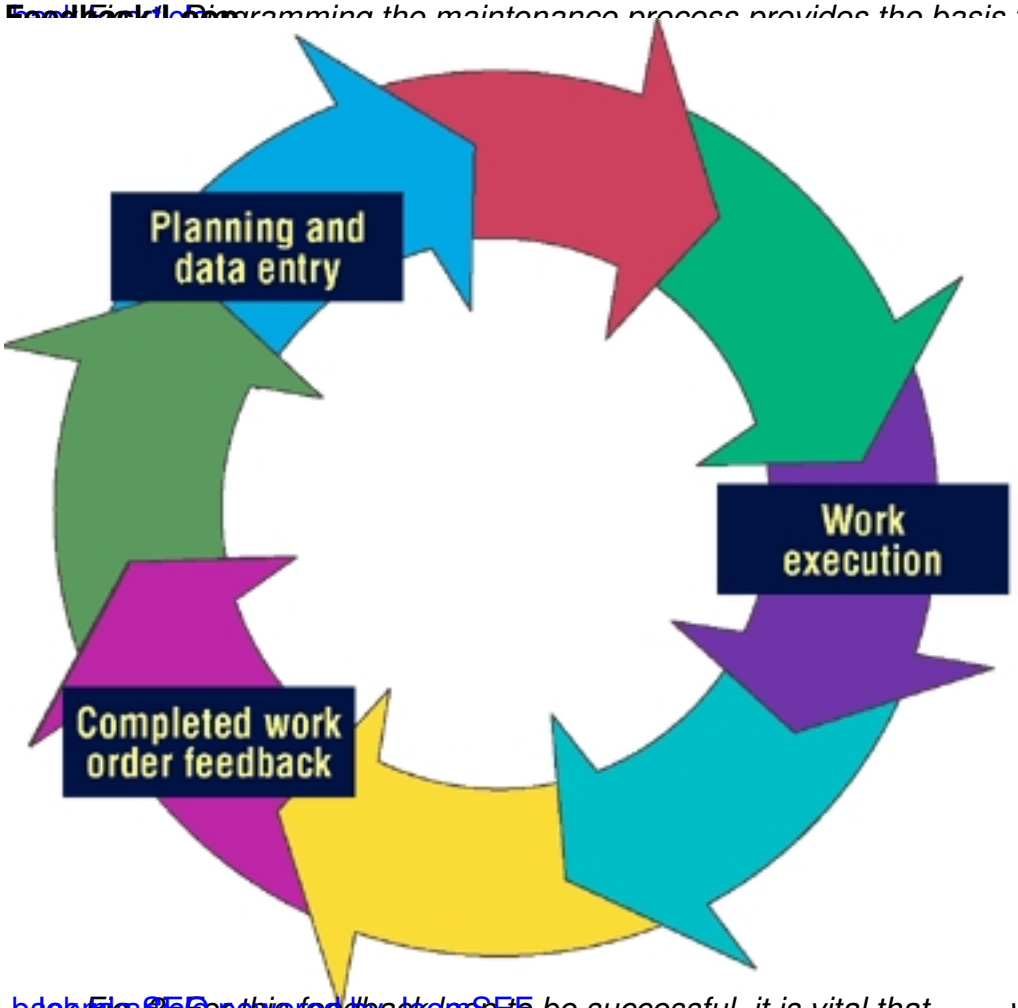


Fig. 8: For this feedback loop to be successful, it is vital that work order information be receive

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