

Improving OEE and Sustainability Food Industry Solutions



TABWARE[™]
MAXIMIZING ASSET PERFORMANCE

**EAM/CMMS Solutions for companies whose success
depends on the performance of their assets**

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- Maximize Asset Performance
 - Improve Operating Efficiency
 - Increase Production Uptime
-

FOOD INDUSTRY SOLUTIONS

Reducing production costs.

Many organizations now allocate a great deal of skill and money to increasing the availability of their equipment assets by improving their maintenance strategy. Every percentage point of efficiency means you're getting more out of your producing assets: your equipment and your staff. TabWare allows you to synchronize maintenance and production planning. Your maintenance planning processes become more formalized and give you a clearer picture of work backlog and future workload. This work process offers increased agility and flexibility, increased delivery performance, minimized product loss and a host of other production and maintenance cost benefits that go directly to your bottom line.

In addition, TabWare's Mobile Suite uses handheld computers to allow maintenance technicians to create inventory requests from any location - letting inventory technicians get materials to the job quickly. From receiving, inspection and put away to picklists, issues, returns and cycle counts, TabWare's Mobile Suite frees inventory technicians from relentless travel to and from fixed work stations and boosts productivity. Your maintenance staff could improve their productivity by 10% or more by using mobile solutions to receive and complete work assignments.

Supporting changing priorities.

TabWare integrates assets with engineering content such as drawings, specifications and etc. such that all content can be quickly retrieved for any asset to effectively manage change. It goes beyond simply linking a document to an asset, it establishes relationships between assets and engineering content so that everyone shares correct information - across plant, across enterprise - so that change is managed and workflow provides the process and controls to quickly execute changes. Additionally, TabWare Xi integrates with plant automation systems for continual asset health assessment and quick response to conditions requiring attention.

Supporting product changeovers and improving line efficiency.

TabWare arms your maintenance staff with the proper tools, techniques and equipment so they can safely operate efficiently and effectively. To minimize the frequency and length of downtime, TabWare focuses on work procedures in recovering quickly from an emergency breakdown. TabWare clearly outlines the steps to take when a breakdown does occur so that maintenance workers can react promptly in resetting the machinery without injury and with minimal product damage. TabWare allows maintenance to pre-plan what is needed for each different equipment repair/failure including parts, tools, skills, safety procedures, equipment engineering drawings and other pertinent information for effective equipment repair. TabWare stores these job plans for quick access when breakdowns occur. This process actually creates more time to focus on PM work further improving reliability.



Use a Light Reliability-Centered Maintenance (RCM) Exercise To Set Strategy Quickly

You should consider a light RCM exercise to set the maintenance strategy for each piece of equipment as quickly as you can if you don't already have this information.

Reliability Engineering is the applied science of understanding how asset health deteriorates and then detecting and mitigating the impact on production. A healthy asset delivers its required function and is expected to meet the needs of production without interruption.

Starting with your entire list of equipment, assign a criticality rating to each item. I suggest you use a simple three-code progression like:

- 1. Downtime or failure immediately affects the entire operation, production and quality**
- 2. Downtime or failure affects only part of the operation, production and quality but the plant can run**
- 3. Downtime or failure has minimal effect on the operation.**

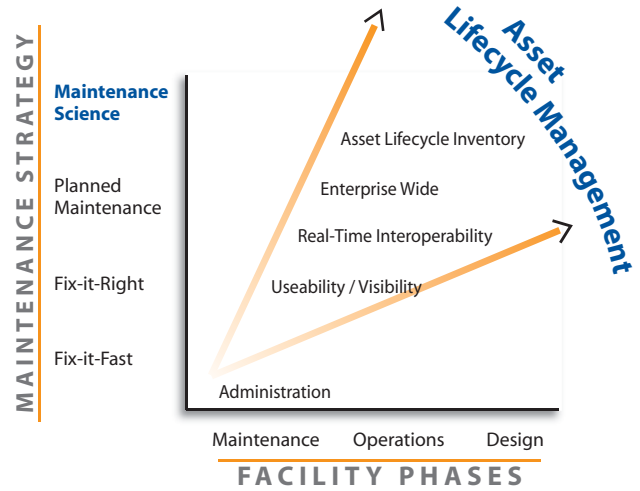
You can add more ratings if you wish but try to keep the list short for simplicity.

Equipment with a Criticality Rating of 1 should get the most attention from maintenance to prevent failures and keep your production running. This group of equipment should not be allowed to run to failure. If the cost of downtime is high enough, you will probably see the use of process controllers, sensors and etc. to control the process and also alert operations and maintenance to conditions requiring corrective actions. Your PM program should cover this equipment's failure modes with inspection, wear part replacement and early detection of pending failure.

Equipment that is running but performing outside of production ratings and specifications (degraded performance) should be considered in a delayed failure mode. This should be addressed quickly to prevent complete failure.

Equipment with a Criticality Rating of 2 should be quickly analyzed to determine the cost and impact of downtime and failure with the costliest and highest impact equipment given the most attention after the Criticality 1 equipment. Periodic inspections and wear item replacement are important but are secondary in priority to that of the more critical equipment. We are not advocating eliminating or reducing maintenance for Criticality 2 equipment, but rather encouraging you to place your emphasis and focus on your most critical assets.

Run to Failure is an acceptable strategy for equipment with a Criticality rating of 3 or higher where the cost, impact and risk of failure is negligible. If in doubt, assess the cost and impact of failure to verify your strategy.



Normalize Your PM Program for Critical Equipment

Once you have your equipment rated, begin with the Criticality #1 items and do a brief review of their PM programs to understand what is being scheduled, how often and why. Look at the equipment failure history (if you have it) and adjust the PM time or usage intervals accordingly. We recommend your PM program be based on a sound Reliability Centered Maintenance (RCM) program for task identification and frequencies. If your program is not based on an RCM program, you should consider RCM at least for the criticality 1 equipment because RCM can dramatically improve equipment reliability and availability.

Keep in mind that research has proven that only 10%-15% of all equipment failures are age related.

Re-prioritize and Re-Sequence Your Existing Work Order Backlog

Armed with your equipment criticality ratings, review your existing work order backlog and insert the equipment criticality rating for the equipment on each work order. (Our software will do this automatically when the equipment records are updated.) When all of the work orders have the Equipment Criticality Ratings added, sort the work order backlog by equipment criticality. Then assess the relative priority of each of the work orders against all other work orders in the same Criticality Rating and make the appropriate priority changes. This quickly provides you with a focus on the most important work to pursue. You may also want to consider the risk of not doing the work order which will also help you set priorities for the work.

All work is planned in one fashion or the other, whether it is at the location of equipment that has failed or through a formal work planning process.

Plan Your Work and Work Your Plan

All work is planned in one fashion or another. Even when equipment breaks down, the work plan is created on the spot (in-situ) with parts, tools and skill requirements determined, located and then brought to the point of performance. This is most inefficient in that lots of time is wasted in determining what is needed, the process to follow and then traveling to various locations (such as storerooms and tool lockers) to secure the needed items. Then you've got to get materials to the point of performance so you can actually start working on the equipment. What is worse is that scheduled production is being lost during all this time.

Review your work order backlog and be sure there is a job plan (skills, spare parts, tools, safety and work instructions, Lock-Out/Tag-Out, permits, and protective equipment) specified for each work order. If your work backlog is huge, then start with the highest priority, Criticality #1 work orders and proceed downward as time permits. Taking the time to assess the job plans can save you over 50% of cost and time to execute the work so this is a critical step that you should not ignore. This is where your reduced staff can really step up and take up the slack by improving efficiency.

Corrective work and even breakdown response work can be planned. For your Criticality 1 equipment, you can pre-plan the work, integrate spare parts and material needs with inventory and schedule your resources. This removes travel time, ensures the proper parts, tools, and skills are brought together with safe maintenance practices and procedures at the right time to do the job effectively. This is a major improvement factor in eliminating time delays and improving the actual work (or “wrench time”).

How do you plan for breakdown response work? Identify the failure modes of your most critical equipment and then pre-plan what you need to do for each different failure including parts, tools, skills and safe procedures to follow for effective restoration. Your Asset Lifecycle Management (ALM) software should be capable of storing these job plans for quick access when breakdowns occur. For equipment under the control of process controllers, PLCs, and/or condition-based monitoring, you should be able to receive alarms and alerts. Alarms and Alerts should provide an alarm code, the equipment asset number and type of alarm along with other pertinent information. The alarm code should be cross-referenced in your ALM system such that pre-planned work orders can be issued with pick lists automatically printed in your stockrooms. This will allow faster response in an organized fashion with much better information.

This will take some time to do but is well worth the effort. Over time, you can determine the most often occurring failure mode and have plant engineering look at designing changes to reduce or eliminate them. But that is another story.

Obviously, it's far less expensive to prevent failures than to respond to them. So as you are working your job plans take some time to see what you can do to detect and prevent the failures and update your PM program accordingly.

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Work With Production to Set Schedules

Now that you have a clear idea of the work load and you have identified the overall sequence, you need to work with production to match their needs with your work backlog. What good is all of your work up to this point if production will not release the equipment to you? You should have at least one meeting every week with production to go over your work order backlog and agree on what work is to be performed, how long it will take and when it is to be done. Prior to the meeting assess the work you can do with your available resources compared with the requirements from the job plans in your backlog. This gives you a clear picture of what you can do when meeting with production. Some work may have to be delayed when your resources get allocated.

If you are experiencing breakdowns then also allocate a percentage of your labor schedule to provide some resources to handle them but still accomplish the work agreed to with production.

The schedule should be treated as an agreement between maintenance and operations with operations agreeing to make the equipment available for a specified time and maintenance agreeing to perform the work within that time.

Arm Your Staff with Better Tools

Did you know that you can improve productivity simply by reducing travel time by your maintenance technicians? The use of modern handheld computers allows technicians to receive their work orders in the sequence you specify wherever they are. They no longer have to go back and forth to the maintenance office to get work orders and turn in completed work assignments. You can even change their assignments immediately when break-in work is required. Also, they can eliminate travel to stockrooms to see if needed spare parts are available, fill out an issue request, wait for the stockkeeper to find and issue the material and then travel back to the job to begin work.

By using handheld computers and implementing a simple delivery process, maintenance technicians can create issue requests from their location and the inventory technicians can get the material to the jobs quickly. This further improves productivity.

Your existing maintenance staff can improve their productivity by 10% or more by using handheld computers to receive and complete their work assignments. For a 50-person staff this could mean an additional 37 hours per day. That is just like adding 4 technicians to your staff.

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Also, using modern handheld computers and the latest technology in your maintenance operation provides an incentive to attract new employees when hiring to manage employee turnover. It is a fact that there are not enough young college graduates or even high school graduates entering the maintenance work force to offset attrition of our aging maintenance workforce.

You should consider implementing the latest technology for Asset Lifecycle Management software. The old EAM/CMMS systems were simply maintenance administration tools that fall well short of what is needed to handle maintenance in today's environment. Our latest tools are designed for quick access to any function with information integrated from Engineering, Operations, Inventory, Procurement and Maintenance. TabWare Xi is the only Asset Lifecycle Management software designed to support your maintenance operations with highly integrated information, built-in productivity enhancers, exceptional ease of use and is certified for use with Microsoft products.

Our latest systems integrate assets with Engineering Content such as drawings, specifications and etc. such that all content can be quickly retrieved for any asset to effectively manage change. It goes beyond simply linking a document to an asset, it establishes relationships between assets and Engineering Content so that everyone shares correct information, change is managed and workflow provides the process and controls to execute changes. Additionally, our systems integrate with plant automation systems for continual asset health assessment and quick response to conditions requiring attention.

**Call Hope Brooks today at (864) 679-3415 and get more information.
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