

# Leveraging the Value of Equipment Management

From pre-acquisition to disposal or resale, with an equipment management plan in place you will realize a machine's highest utilization and productivity—at the lowest owning and operating cost.

By Gerald Green

**M**ost equipment management experts agree that with the right equipment management planning, 80 percent of earthmoving equipment repairs should be scheduled in advance of failure. Yet, they estimate that 80 percent of repairs actually occur after catastrophic failure. Experts also note that, even without figuring in lost production, failure repair costs typically run triple the costs of before-failure repairs.

That is why a comprehensive equipment management plan that covers all aspects of productivity, service, and maintenance is so important. It is especially critical because today's sophisticated equipment requires preventive maintenance and repair at the optimal time. If that does not happen, you can incur unnecessary and costly expenses. And if you are managing a large fleet, the potential for such problems becomes magnified.

With a robust equipment management plan, you can make equipment work smarter and harder than it used to. You will manage in a proactive mode, because the technology you incorporate will let you know what's happening with your equipment, so you can fix it before it breaks.

Essentially, using equipment management, you reduce risk in operating profitability because of good maintenance, repair planning, and proactive condition monitoring. Equipment management helps detect problems, minimize downtime, increase equipment availability, and maximize equipment life. It also adds value to your equipment at resale because you can show prospective buy-

ers a detailed record of well-performed maintenance.

For some, implementing an equipment management plan will require a transformation in the way business is done. Also, the adage, "To make money, you have to spend money," holds true. But your initial investment in people, training, and technology will pay off. Equipment management will actually help you control costs and save money. In fact, it can easily result in multimillion-dollar savings. Just take a look at this real-life example.

## Management in Action

In 1997, a large, county-managed landfill operation with multiple sites was experiencing excessive unscheduled downtime, and maintenance and repair costs far exceeded budget. Fuel, maintenance, and repair records were virtually non-existent, and too much equipment was being underutilized, while in-house mechanics were totally unaccountable.



In short, they were in real trouble.

With assistance from its equipment dealer, the landfill operation developed an aggressive equipment management program. A large part of the program involved technology, and it played a major role in turning the operation around.

Was it painless to implement their equipment management program? No. Was it free? No. Was it worth it? Absolutely. As a result of the program, the site is now saving more than \$1 million a year by repairing the equipment through planned maintenance vs. repair after failure. The dollars being saved on repairs are being used for purchasing new equipment that features the latest electronic technology. The benefits include longer-lasting machines that feature lower emissions and a more comfortable working environment for the operators. With the newer technology, the company is also saving approximately \$500,000 a year by using about 75 percent less in cover dirt each day. Less dirt and more trash in the same amount of air space equates to approximately \$1 million a year in additional tipping fees.

The following five steps contain several activities that you can engage in to begin developing an equipment management plan. They are not meant to be all-inclusive. They are simply suggestions to help get you started thinking about the tasks involved and how you might go about accomplishing them.

**STEP 1.** Understand the entire equipment life cycle. Determine the expected ownership period to effect the overall equipment operating cost. With a true



understanding and control of owning and operating cost, you can determine what each machine costs to operate and how much you need to charge for a project. You can even figure the resulting profit margin.

Develop an ownership plan and build a maintenance schedule during equipment acquisition or immediately following equipment rebuilds. Consider a contractor that owns a wheel loader operating at 2,000 hours per year for ten years, for a total of 20,000 equipment hours. During the life of the equipment, the contractor knows the major components will require an overhaul before reaching 20,000 hours.

Depending on the expected ownership period, completing the overhaul too early adds risk to the planned equipment disposition. Yet, performing the overhaul too late inflates the overhaul cost and rebuild life. Relying on an equipment management plan, the owner decides the overhaul should take place at 12,000 hours—when a planned overhaul maximizes parts re-use and reduces downtime.

Make informed equipment decisions. Deciding whether to buy, rent, or sell is a lot easier when you take the entire equipment life cycle into account. By calculating life cycle costs, you can make an informed decision about each and every machine.

**STEP 2.** Incorporate technology into the plan to leverage the value of sophisticated equipment.

Create an equipment management plan using software and related technology tools. To manage today's sophisticated equipment, you need more than anecdotal reports from the field and

sticky note reminders that a machine needs an oil change. You need technology to help you leverage the full value of your equipment.

Depending on the size of your organization, your technology solution may be as simple as installing an equipment management software application on your existing system.

Or, your solution may require a robust rollout of onboard equipment technology linking to an online system.

From the convenience of your office, you can connect to the Internet to download equipment utilization information, operator events, fault codes, fluid sample results, active and passive backlogged events, and other real-time information to make better decisions and manage costs. It is also becoming more common to use laptops in the field to diagnose equipment and locate parts via the Internet.

Develop integration with existing processes and systems, and “smart products.” Integrated with other systems, smart products “think, act, and communicate.” Smart products combine the best in satellite communication technology, Web security, e-commerce, GPS, and mapping technology to provide you with a common view of your entire fleet.

Smart products possess information sensing ability, on-board diagnostics, controllers, and networking communication capabilities. They also present data to managers as an information display based on individual preferences and unique needs. The most robust systems automatically prioritize alerts, allowing you to manage by exception and focus your resources on critical areas.

Your equipment dealer should be able to make recommendations on the technology and application best aligned with your business. Many OEMs also provide staff training programs on the effective use of technology. Most also make it convenient for you to order parts online.

**STEP 3.** Foster an equipment manage-

ment mentality throughout your organization. Embrace this as a change management initiative. For some in your organization, the implementation of an effective equipment management program may initially create some uneasiness. That's understandable, since they may have been working in a reactive, “put out the fires” mode for years. For others that are less technically savvy, they may doubt their ability to learn a new system.

To erase their fears and doubts, train everyone in your organization on the basics of your equipment management program, from accountants to mechanics. Communicate both short- and long-term goals and successes to convince your team that this is a long-term strategy. It is your organization's future.

Designate an equipment management program champion. When you designate the right person to champion the cause, implementing an equipment management program will be more focused and timely, which translates to greater rewards at an accelerated pace.

**STEP 4.** Acting as an equipment manager, conduct site and system analysis. Analyze your job sites, maintenance departments, maintenance products, and management systems. Discover needed products, systems, and support to get the most effective and efficient use of your equipment.

- Review existing resources.
- Determine specific gaps in resources and equipment.
- Construct a plan for every piece of equipment you own.

Let's say you own a mixed fleet comprised of 40 pieces of equipment. One of your biggest challenges is finding,



training, and retaining mechanics. Even though you realize that your fleet needs regularly scheduled maintenance, you simply cannot find enough people to perform the repairs.

Because you identified the specific gaps in maintenance resources and levels of expertise, you develop a cost-effective equipment management plan for the entire life cycle of your equipment. Your plan includes additional training for your limited repair staff to make them as efficient as possible.

**STEP 5.** Implement a machine-specific project management system. Register all equipment, assets, and records about scheduled events in a project management system. As a first step, enter all the basic model and serial number information about your equipment into the system. Using the serial number, the system should allow you to make knowledge-based decisions about component life, before- and after-failure risk, and the timing of preventive maintenance for specific machines.

Provide proactive information regarding those events, using the system to schedule resources and then record each event's completion. For example, suppose the system alerts you that 16 of 40 pieces of equipment are scheduled for an engine overhaul within the next 18 months. You prepare a schedule to minimize equipment downtime. In addition, you develop alternative solutions, e.g., rental options. Then, record completion of each event immediately after it takes place.

Use manage-by-exception systems to track the success or failure of your planning. With a solid understanding of your business environment, needs, and resources, you can detect opportunities for improvement. For example, the system notifies you that a particular model you own is always behind on preventive maintenance. You realize that your technicians lack the tools and expertise to complete the work on that particular piece of equipment. Now that

you know, you can take action to get the equipment back on schedule.

## Outsource Versus Do-It-Yourself

When you outsource equipment management, you shift the risk and responsibility from your organization to the equipment dealership. To help determine if you should take a closer look at outsourcing, ask yourself these questions:

**PEOPLE**—How will I find, train, and retain competent equipment maintenance personnel?

**MANAGEMENT**—Where will I find the leadership within my own organization to move from unplanned, reactive maintenance to planned, proactive maintenance?

**PERFORMANCE MEASUREMENT**—Do I have the people and processes in place to perform equipment analysis, elevate the use of equipment management technology, and learn and adapt from performance measurements?

**PARTS AND MAINTENANCE SUPPLIES**—Where will I find time to address repairs, procurement, management, ownership, warranty administration, and total cost of ownership issues?

**Costs**—How do I maximize the value of every dollar spent on maintenance and reduce the costs associated with poor maintenance?

If you readily know all the answers to these basic questions, if equipment management is truly a core competency of your organization, then you can concentrate on improving your maintenance organization. But, if you are struggling for answers, then outsourcing all or part of your equipment management becomes a viable option.

Keep in mind that equipment management is a long-term strategy. It is not as if one day you decide to "turn it on" and everything will be ready to go. While some results may be immediate (e.g., an increase in machine availability due to better maintenance), some of the more advanced decision-making capabilities (cost-per-machine hour) may take awhile. Do not give up. Implementation of equipment management will be an evolutionary process for you and your team. **GE**

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