

The 80/20 Rule and Asset Management ROI by **Dennis H. Gregory, Asset Management PM** **ECO:LOGIC Engineering**

Pareto's Principle, originally developed in 1906 by Italian economist Vilfredo Pareto, has been widely used during the last 100+ years to call attention to everything from business processes to time management. In practice, we've found significant value in the focus and effort involved in simply dividing whatever you are organizing into these percentages. Like project management, the "preparation" is always revealing and incredibly beneficial to project "implementation".

Recent studies in the private sector have established target percentages for maintenance labor hours to achieve optimal results. These targets not only optimize the return on investment (ROI) of those hours, but optimize the sustainability of the equipment and systems upon which the labor investment is made. While the private sector goal may be the resulting benefit as applied to "bottom-line" dollars, saved or gained, an important common denominator across both public and private sectors is the resultant "extended service life" and "reduced repair cost" of an asset being actively managed. In the public sector, these factors are important. Of course, saving money is important, too ... so, read on.

Targets and Surveys

Recent articles and formal surveys found in [Plant Engineering](#), [Control Engineering](#) and other magazines, have established optimal targets for maintenance cost. The general consensus appears to be that if you spend 80-85% of your maintenance labor hours on "preventive and proactive" efforts, you will and should be spending no more than 15-20% of that labor to correct un-planned equipment failures. This means, that if your repair-related labor costs are above 20% of the total budget, you are "upside-down" and can be spending less. Unfortunately, these same surveys have found that more than 50% of all maintenance being done in our industry is reactive. As you have probably figured out by now, reactive maintenance, or "un-scheduled repairs", is considerably more costly than the preventive type.

Changing the Paradigm

Before you can begin counting hours saved or lost, you must convince the decision-makers in your organization that proactive and prevention management is more than worth the relatively small investment needed to get it started. Workable analogies include, changing the oil on your car vs. changing or rebuilding a damaged engine; \$29.95 vs. \$3,000-\$5,000. Not so hard to see, right? Or, another might be comparing an hour spent each month checking a sight glass or grease cartridge on a rapid-mixer gear drive vs. the \$20,000 refurb that may result if you don't. However, the real challenge to achieving that 15-20% target for repairs is being able to coordinate and manage the maintenance effort effectively; the 80-85%. This is easily accomplished with software tools.

Managing Assets

Fortunately, there are many software applications, specific to managing preventive maintenance or managing assets, available to our industry at relatively low up front cost. These are called computer maintenance management systems (CMMS). More comprehensive applications, sometimes called proactive asset management software, or PAM, can handle life-cycle and risk analysis, equipment refurb prioritization, and even budget and funding strategies. Both CMMS and PAM software offer a far more precise means of managing assets and preventive maintenance; prerequisites to achieving that 80/20 target ... while providing short-term ROI.

Comparing Applications

There are literally hundreds of CMMS applications on the market while the number of good, user-friendly PAM applications applicable to our needs can be counted on one hand. In evaluating a dozen or so CMMS and a few well-known PAM applications, we will say that all of them will do the job. The deciding factor comes down to “cost vs. needs”. That’s not to say that if you spend more you won’t get more ... to some extent this is probably true to a point. However, remember that you *can* also go “as fast as you need to” in either a \$30k Chevy or \$200k Ferrari or Mercedes, given the environment. Any of the many CMMS or PAM tools available will put you on the “freeway” of asset management. The important thing is to put wheels under a program as soon as possible, and if \$30k will get it started ... write a check!

User-Friendliness

In evaluating CMMS and PAM systems, we tried to be objective with regards to like-functions and evaluation criteria. However, we found two important elements emerged, having implemented and trained clients on several different systems; 1) the ease of getting data in and, you guessed it, 2) getting data out, or the “usability” of the actual output.

For example, applications requiring moderate computer knowledge to input or pull data were rated low, while applications with quick access to trends and reports were rated more desirable. Another important area was work order generation and functionality. Systems having a simple and concise WO engine were rated highly. Remarkably, this area differs greatly between systems. For some reason, the more expensive the application, the more difficult work order processing became, and to use in day-to-day operations.

We found that getting data in and out is what drives the desire to use these systems. And, choosing the wrong system can jeopardize your entire maintenance or asset management program. If you need to know C++, SQL or even advanced Excel programming to manipulate data, you won’t like using it day-to-day. And, you may have to go back to the vendor often ... at some additional expense.

Return on Investment

So, what about that ROI, you ask? Well, aside from the rather intangible (read: difficult to measure) returns in the areas of:

- Longer equipment life
- Lower cost of ownership over the equipment life cycle
- Minimized risk
- Maximized level of service
- Increased reliability
- Defensible rate increases
- Intelligent decision-making
- Funding strategies for budget development
- Strategic planning

... real numbers have come to light recently, published by IBM asset management group, that a municipality can more easily wrap their arms around. Look for benefits as follows:

- Labor utilization up by 10-20%
- Asset utilization up by 3-5%
- New equipment purchases down by 3-5%
- Lost warranty recoveries up by 10-50%
- On-hand inventory needs down by 20-30%
- Material costs reduced by 5-10%

These percentages equate to “real dollars” ... And, in a public entity, this can lead to jobs saved, a more focused budget to meet needs, and yes, even rate reductions to constituents. To see these benefits first-hand, pull out the current budget and apply an annual budget number in one of the above categories. You will be surprised how quickly it adds up!

Conclusions

You do not need to spend a lot to get a useful application. We found that CMMS applications in the \$3k to \$4k range produced very useable reports and work orders. A complete PAM application adds another \$15-\$20K. Consider also, that you will need to spend somewhere in the neighborhood of \$20k-\$40k for implementation, i.e., populating the database. Beyond that, the return offered by more “bells and whistles” became difficult to justify. At these numbers, amortization is less than 12 months in most cases. And, don’t forget those intangible benefits!

For more information, or to gain from our professional experience in the areas of computer-based maintenance management, asset management and implementation services, call us at **916-773-8100**. We don’t sell software; we provide “no pressure” education and consulting services.