

B2W FLEET MAINTENANCE & MANAGEMENT
BEST PRACTICES SERIES:

INTEGRATING ERP AND CMMS CAPABILITIES TO MANAGE EQUIPMENT

By Jennifer Angrisano
Business Analyst - B2W Software

Jennifer Angrisano has helped organizations improve maintenance practices in the heavy construction sector for more than 15 years. Before joining B2W Software as business analyst, she was a total process management consultant. Previously, she led the conversion to a software based program for a heavy highway construction enterprise with a fleet of more than 300 pieces of equipment, turning a \$1.3 million loss in the shop into a \$200,000 gain in a single year.



Integrating ERP and CMMS capabilities to manage equipment

An ERP system and CMMS software like B2W Maintain – working in cohesion – can help contractors minimize equipment costs and maximize uptime. This edition of the B2W Fleet Maintenance & Management Best Practices Series covers the capabilities of each system and the best practices for integrating and leveraging them.

Scope

Equipment management is the balance of reliability, cost and age of equipment to obtain the greatest utilization over the lifetime of the asset. Maintenance managers should leverage a combination of Accounting Enterprise Resource Planning (ERP) Software and Computerized Maintenance Management Software (CMMS) in order to effectively manage equipment reliability and age, while controlling costs. The key is to use both systems in tandem to ensure the best possible equipment management results. The ERP system captures actual equipment ownership and operating cost data to produce complete and detailed reports in conjunction with financial statements. The CMMS is a tool to manage and plan maintenance activities, capturing important historical data to assist with controlling costs and managing the age and reliability of equipment.

While the CMMS has the ability to capture a portion of the operating costs, they are not entirely actual costs. The costs in the CMMS are typically standard or average costs, while the ERP system captures the actual costs. It is important to remember that while operating costs in the CMMS may not be exact, they must be accurate enough to provide meaningful tools for management action.

	ERP ACTUAL COSTS	CMMS STANDARD/AVERAGE COSTS
OWNING COST - DEPRECIATION	✓	
OWNING COST - INSURANCE	✓	
OWNING COST - INTEREST	✓	
OWNING COST - TAXES	✓	
OWNING COST - LICENSE	✓	
OPERATING - LABOR/BURDEN	✓	✓
OPERATING - PARTS	✓	✓
OPERATING - TIRES	✓	✓
OPERATING - FUEL	✓	✓

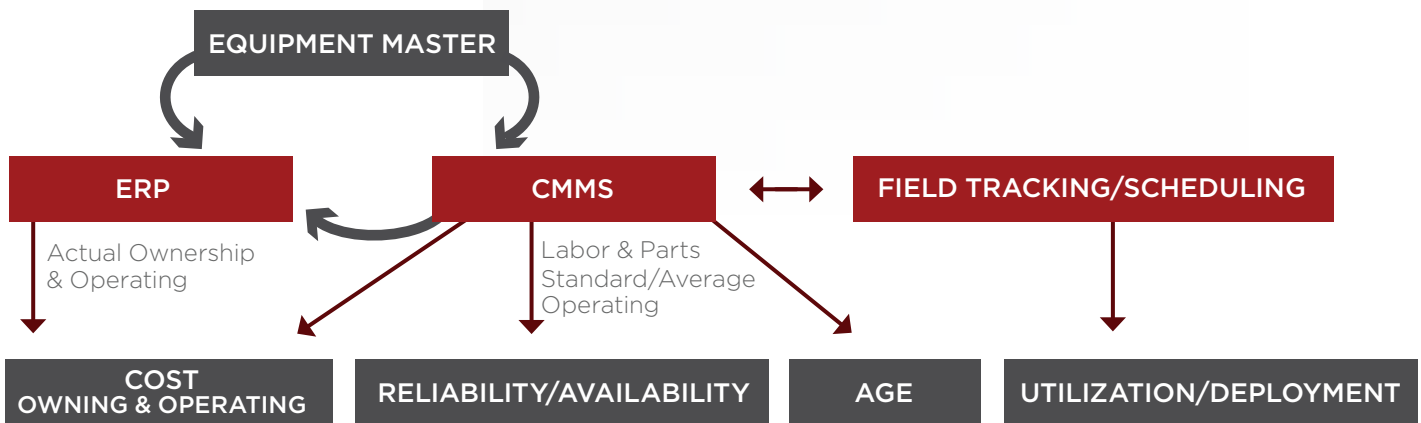
Careful planning must be considered in establishing standard or average costs to be used in the CMMS software. When calculated and established properly, costs will be within a fair variance from the actuals, rendering a true-up process unnecessary.

The following recommended practice addresses what should be captured in both an ERP and CMMS, and how they integrate to provide valuable data to assist a maintenance manager in controlling costs, age, reliability and increasing utilization to run a best in class maintenance organization.

Resources

B2W's ONE Platform has the ability to capture data that is integral to managing operating costs, age, reliability and utilization. B2W Maintain collects labor at a standard rate and parts at standard or average. Also captured in B2W Maintain is information on equipment age, along with history of maintenance performed on each asset. Establishing automated preventive maintenance schedules enhances reliability and availability of equipment. B2W Track captures meter readings used to drive preventive maintenance schedules, in addition to equipment usage for utilization calculations that trigger equipment revenue in the ERP. B2W Schedule provides additional data for utilization and deployment. Owning costs are fixed costs associated with owning a piece of equipment such as depreciation, loan repayments, registrations, taxes, interest, etc. These costs are captured in the ERP. Operating costs are the variable costs incurred from operating a piece of equipment including maintenance labor, parts, fuel, etc. The actual operating costs are captured in the ERP based on a combination of data initiated in both the ERP and CMMS. Labor and parts are captured in the CMMS at a standard or average cost, and is typically used to trigger actual costs in the ERP. It is important to determine what level of detail will be established in the ERP system, given the decisions are made by different roles within a single organization. The detail available in the CMMS is typically not duplicated at the same granular level in the ERP.

In order to use both systems to make informed equipment decisions, the Equipment Master must use Equipment ID's that are the same in both systems.



Simple calculation of a standard labor rate: Gather the following information from your ERP system: Prior year total maintenance hours, total labor dollars and total burden dollars.

When using the standard labor rate method, you only will capture straight hours in B2W Maintain because overtime and double time are included in the rate calculation.

	HOURS	DOLLARS	AVERAGE PER HOUR
LABOR (REGULAR)	16,000	\$400,000	
LABOR (OVERTIME)	2,800	110,000	
LABOR (DOUBLE TIME)	10	500	
TOTAL LABOR	18,810	\$510,500	
TOTAL BURDEN		140,000	
STANDARD AVERAGE RATE	18,810	650,500	\$34.50

Labor rates

The B2W ONE platform provides the setup of Labor Types, Labor Rate Classes and basic employee information in the Resources section. Labor Types represent the various roles associated with employees, such as Mechanic. Labor Rate Classes contain the hourly rates associated with the Labor Types, which is where the standard/average labor rate for a mechanic is setup. The information is then used to record time against work orders and timecards, resulting in labor costs.

There are many methods that can be used in establishing standard/average labor rates for use in B2W Maintain. It is important to take careful consideration when setting up these rates to ensure the costs report is within an acceptable variance to actual cost in the ERP. The following can be used as a guideline for establishing these labor rates:

The simplest way to establish labor rates is to determine an average labor rate based on what your mechanics were paid previously. To keep this as close to actual as possible, it is recommended that you recalculate these rates annually. However, a quarterly review is recommended to determine if the variance is higher than acceptable. At that point, rates can be recalculated and updated accordingly.

Parts cost

B2W Maintain provides a mechanism for establishing parts in Inventory at standard cost or average cost. This is determined when setting up the Business Unit that the parts are assigned to. If the Business Unit is set to Standard Cost, a field is opened to allow a standard unit cost to be established when creating/editing a part, or when importing parts into B2W Maintain. This method is difficult to control and will often result in a higher variance, unless the user is updating the standard cost frequently.

If Average Cost method (preferred) is selected when setting up the Business Units, the average cost for parts will be calculated as they are added to inventory. This will allow parts costs to report in an acceptable variance from actuals.

Tires can be considered parts, and the costs associated with them are established in the same manner. Based on the method used, the parts cost will carry over to the work order when the part is recorded as used. This, in turn, will provide the parts/tire cost based on standard or average cost method.

Fuel costs

B2W Maintain has the ability to import fuel transactions to equipment in order to monitor life-to-date fuel usage and cost. Since this is an import into B2W Maintain, it is up to the user to decide whether they use actual fuel cost or an average fuel cost.

Results

Using standard/average costs in B2W Maintain will provide reasonable data for a maintenance manager to make informed decisions. The Equipment Maintenance Cost Report can be used to inform these decisions, and can also be used to ensure the cost variance in comparison with the ERP stay within an acceptable range. This report can be run for a specific date range and provides Labor Hours, Labor Cost, and Part Cost.

Equipment Maintenance Cost Report

Filters: Start Date - 7/26/2017; End Date - 8/24/2017

ID	Equipment	Equipment Type	Equipment Category	Serial Number	# of Work Orders	# of Work Items	Labor Hours	Labor Cost	Parts Cost	Total Cost
08-03	2007 CAT D9T DOZER	CAT D9T DOZER	DOZER	8724585	2	3	19.50	\$702.00	\$1,151.02	\$1,853.02
10-11	2011 INTERNATIONAL LOWBED TRAILER	LOWBED TRAILER	TRAILER	1FD8X3F62EEB46678	1	1	9.00	\$342.00	\$1,899.00	\$2,241.00
14-01	2014 POWER CURBER 5700-C	5700-C POWER CURBER	POWER CURBER	2640955	1	1	8.00	\$288.00	\$48.10	\$336.10
14-03	2014 CAT AP555E PAVER	CAT AP555E PAVER	PAVER	5010615	1	1	8.00	\$288.00	\$4.90	\$292.90
14-05	2014 FORD F-350 UTILITY PICKUP	CLASS 3 TRUCK	TRUCK	1FD8X3F62EEB43579	1	1	10.00	\$396.00	\$340.00	\$736.00
14-15	2015 MACK CXU613 TRACTOR	CLASS 8 TRUCK	TRUCK	1FD8X3F62EEB43888	1	1	5.00	\$180.00	\$210.48	\$390.48
15-04	2014 INTERNATIONAL 4300 AUGER TRUCK	CLASS 7 TRUCK	TRUCK	1FD8X3F62EEB43582	1	2	18.00	\$738.00	\$361.50	\$1,099.50
15-15	2015 CAT CB54B 10TON VIBRATORY ROLLER	CAT CB54B ROLLER	ROLLER	1001001048	1	1	5.50	\$198.00	\$72.36	\$270.36
16-01	2015 MACK GU713 TRI-AXLE DUMP TRUCK	TRI-AXLE DUMP	DUMP TRUCK	1FD8X3F62EEB43584	1	1	4.00	\$144.00	\$148.95	\$292.95
16-02	2015 MACK GU713 TRI-AXLE DUMP TRUCK	TRI-AXLE DUMP	DUMP TRUCK	1FD8X3F62EEB43585	1	2	6.25	\$225.00	\$121.99	\$346.99
16-04	2015 MACK GU713 TRI-AXLE DUMP TRUCK	TRI-AXLE DUMP	DUMP TRUCK	1FD8X3F62EEB43587	1	1	6.00	\$252.00	\$22.47	\$274.47
16-08	2016 CAT 320 EXCAVATOR	CAT 320 EXCAVATOR	EXCAVATOR	1001001047	1	2	16.00	\$776.00	\$25.00	\$801.00
16-09	2016 CAT 320 EXCAVATOR	CAT 320 EXCAVATOR	EXCAVATOR	1001001037	1	1	6.00	\$216.00	\$66.48	\$282.48
Total:					14	18	121.25	\$4,745.00	\$4,472.25	\$9,217.25

DEFINITIONS

ERP: Enterprise Resource Planning software

CMMS: Computerized Maintenance Management Software

Owning Costs: Owning costs are fixed costs associated with owning a piece of equipment such as depreciation, loan payments, interest, etc.

Operating Costs: Operating costs are variable costs incurred from operating a piece of equipment including maintenance labor, parts, etc.

Interactions

Many of the topics covered in this document not only impact B2W Maintain, but every element in the B2W ONE Platform. The employees, labor types and rate classes are setup in the same area as those for B2W Maintain. B2W Track and B2W Schedule provide important information that the maintenance manager will use in decisions, such as the utilization of equipment.

B2W has created add-in exports that allow the user to pull data from B2W Maintain and import it into an ERP. The most common and recommended export is the standard mechanic time card. This allows for the export of key data, including equipment ID, employee, hours, and coding. In turn, this data is used to trigger actual costs in the ERP system.

Watch **B2W Maintain** introduction video:

