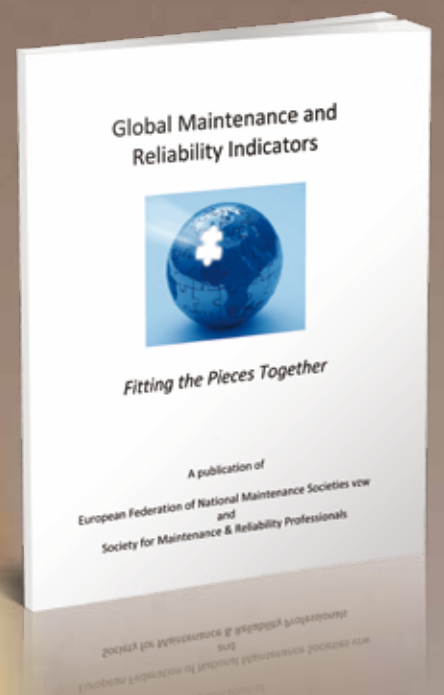




# GLOBAL MAINTENANCE AND RELIABILITY INDICATORS

The necessary tool for benchmarking in maintenance and availability



When comparing Maintenance and Availability performance you need a set of clearly defined and standardized indicators supported by definitions. In Europe you can use the indicators defined in EN 15341: 2007. In North America one can take advantage of the SMRP metrics.

If you want to compare and translate the different local indicators and definitions you can use the "Global Maintenance and Reliability Indicators" book. Harmonised indicators are those which are similar between the SMRP and EN 15431, and those for which any differences can be identified. The harmonised indicators provide a common platform for global organizations to benchmark their facilities across borders.

The "Global Maintenance and Reliability Indicators" book includes 29 Indicators identified as harmonised. Each indicator is documented by "hands on" examples on the calculation of the indicator to enhance understanding.

## EXAMPLES OF HARMONISED INDICATORS:

EN 15341		SMRP	
Indicator No.	Indicator Ratio	Metric No.	Metric name
E1	Total Maintenance Cost x 100/Assets Replacement Value	1.5	Total Maintenance Cost per RAV
E15	Corrective maintenance cost x 100/Total Maintenance Cost	5.1.1	Corrective Maintenance Cost
E18	Preventive maintenance cost x 100/Total Maintenance Cost	5.1.3	Preventive Maintenance Cost
T17	Total operating time x 100/Number of failures	3.5.1	MTBF
T18	Number of Systems Covered by Criticality Analysis x 100/Total Number of Systems	3.1	Systems Covered by Criticality Analysis
O10	Direct maintenance personnel on shift x 100/Total direct maintenance personnel	5.5.6	Craft Workers on Shift Ratio
O16	Corrective maintenance man hours x 100/Total maintenance man hours	5.1.2	Corrective Maintenance Hours
O26	Number of the spare parts supplied by the warehouse as requested x 100/Total number of spare parts required by maintenance	5.5.33	Stock outs

## SAMPLE CALCULATION FOR PREVENTIVE MAINTENANCE COST

The total maintenance cost for the month was \$567,345. The total cost of preventive work orders for company personnel was \$227,563, contractor purchase order amount for preventive work totalled \$23,587, operator work orders for equipment monitoring totalled \$4,600 and operator preventive work orders totalled \$7,300.

$$\begin{aligned}
 \text{Preventive Maintenance Cost (\%)} &= \frac{\text{Preventive Maintenance Costs} \times 100}{\text{Total Maintenance Costs}} \\
 \text{Preventive Maintenance Cost (\%)} &= \frac{\$227,563 + \$23,587 + \$7,300}{\$567,345} \times 100 \\
 &= 45.55\%
 \end{aligned}$$

## ORDER POINT:

The Global Maintenance and Reliability Indicators book can be purchased in a pdf format from the SMRP and the EFNMS websites:

**Member price**    75 US\$            54 Euro  
**Non-member**    175 US\$            125 Euro

SMRP promotes information exchange through a network of maintenance and reliability professionals, supports maintenance and reliability as an integral part of business and asset management, and seeks to be a voice that advances innovative reliability practices. For more information about the SMRP, please visit their website at [www.smrp.org](http://www.smrp.org).



EFNMS is the umbrella organisation for the National European Maintenance Societies  
 For more information about the EFNMS, please visit their website at [www.efnms.org](http://www.efnms.org).