Which side are you on?
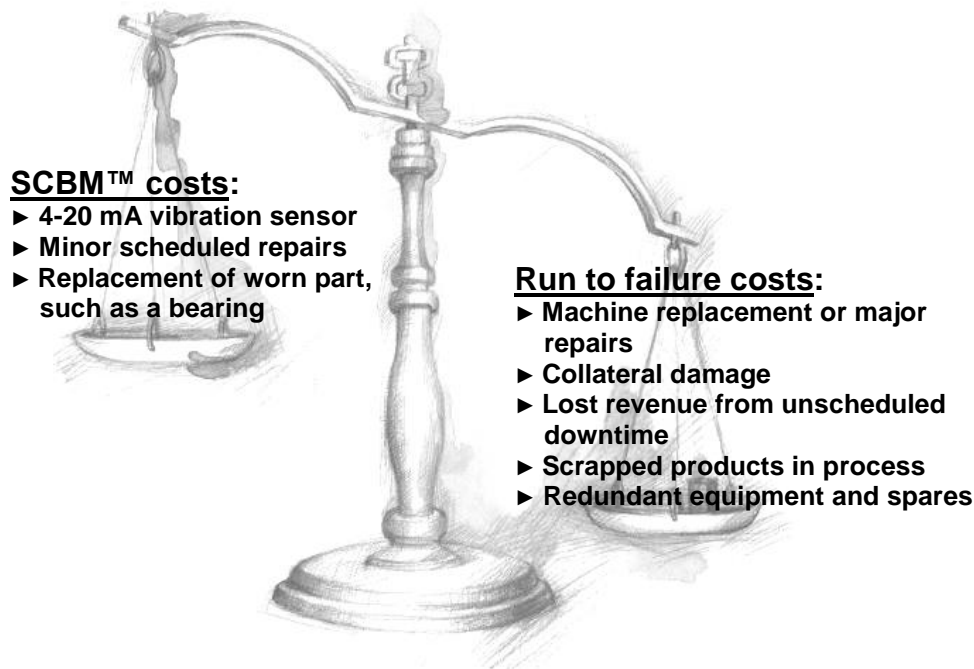
A Run To Failure (RTF) approach to maintenance consumes your budget with hidden costs that eat away profits.

SCBM™ costs:
► **4-20 mA vibration sensor**
► **Minor scheduled repairs**
► **Replacement of worn part, such as a bearing**

Run to failure costs:
► **Machine replacement or major repairs**
► **Collateral damage**
► **Lost revenue from unscheduled downtime**
► **Scrapped products in process**
► **Redundant equipment and spares**

Perform maintenance, not costly repairs

>> Condition based maintenance corrects developing faults such as looseness and worn bearings before a catastrophic failure

>> Maintenance performed during scheduled downtime does not affect production

>> Condition based maintenance reduces the need for redundant equipment

Simplified Condition Based Maintenance (SCBM™)

Vibration monitoring can provide the first warning sign that a machine is developing faults and may fail. Using 4-20 mA vibration sensors simplifies CBM by connecting directly with your facility's existing plant control system, such as a PLC, DCS, or SCADA system. Best of all, you don't have to be a vibration expert to get actionable data!

Depending on your SCBM™ needs, Wilcoxon offers the following products:

#1: 4-20 mA vibration sensor → relay alarm
#2: 4-20 mA vibration sensor → PLC/DCS/SCADA*
#3: Accelerometer → vibration transmitter → PLC/DCS/SCADA*
#4: Accelerometer → vibration transmitter → relay alarm → PLC/DCS/SCADA*

*Wilcoxon Sensing Technologies provides all of these products except the PLC/DCS/SCADA

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RTF example: pump misalignment

If the boiler feed pump had been monitored with four vibration sensors, the misalignment could have been detected and realigned during scheduled downtime. However, the plant did not perform condition based maintenance. Instead, the pump failed without warning for the second time in eight years. The effect of the undetected misalignment was to overload the bearings, resulting in premature failure and collateral damage to the pump and motor. The pump was not spared, therefore the boiler was inoperable until the pump could be repaired and new bearings installed. Due to inventory reduction, no replacement bearings were on-hand. Instead a frantic scramble began to locate a supplier who had the hard-to-find replacement bearings in stock and overnight them at a substantial cost on top of the cost of the bearings. Replacement bearings arrived the next morning, at which time the pump was repaired, realigned, and put back in service. The boiler, which usually operated 24/7 was down for 32 hours, from 10 am until 6pm the next day, resulting in lost production and revenues of $6,000 per hour. At the time the pump failed, $18,000 worth of products in process were ruined and had to be scrapped.

SCBM™ cost = expense of monitoring + expense of repairs

$1300	for four 4-20 mA vibration sensors and cables
$280	for laser alignment utilizing 4 hours of labor
$1,580	= Total SCBM™ cost

RTF cost = expense of a failure x probability of a failure

$0	for a replacement pump, which was not necessary because the failure could be repaired
$2,000	for bearings and labor to repair the pump (collateral damage)
$10,000	for spared motor swap out and repair to original motor (collateral damage)
$280	for laser alignment which still had to be performed after the pump bearings were repaired
$1,000	for expediting fees and air shipment to get the replacement bearings the next day
$192,000	for lost revenue from 32 hours of unscheduled production downtime
$18,000	to scrap products in process
$223,280	Total cost of failure
X 0.25	*probability of failure* (once every 4 years)
$55,820	= Total RTF cost

How much does RTF cost you? Fill out all that apply:

$_____ machine replacement
$_____ collateral damage
$_____ machine repair labor
$_____ replacement parts
$_____ expediting fees on parts delivery or rush services
$_____ lost revenue from production downtime
$_____ scraped products in process
$_____ spared or redundant equipment
_____
$_____ RTF subtotal
X _____ probability of failure (a number between 0 and 1)
_____
$_____ Total RTF cost

Ready to switch sides?
Call 1-800-WILCOXON, email info@wilcoxon.com or go to www.wilcoxon.com for more information.