

What is the Context for Managing Maintenance?

What do bosses really want from the maintenance effort?

We don't have to be mind readers about what the big bosses want from maintenance. We just have to read the Wall Street Journal or any newspaper business section. Big bosses want less maintenance, big bosses want maintenance that does not interfere with production, and big bosses don't want anything like accidents, environmental violations, or fires, to get in the newspapers.

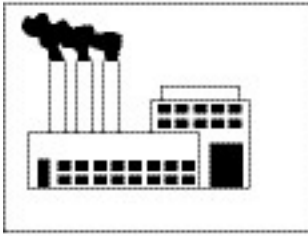
The bosses are responding to the reality of their market places. They don't necessarily see the retirement of skilled maintenance workers as a core issue but they do see the erosion of market share by competitors (both domestic and international). Bosses are constantly being exhorted by corporate management to lower the unit cost of production. In many companies, if the unit cost can't be lowered, production will be moved to lower labor rate areas overseas or to plants with lower overall costs.

These conditions are the reality of the ridge road. Slow death on one side from erosion of market share, and quick death on the other from a plant closure. The ridge road is a tough road because the maintenance department is smaller and there is less opportunity for mistakes. The consequences of any mistakes are greater.

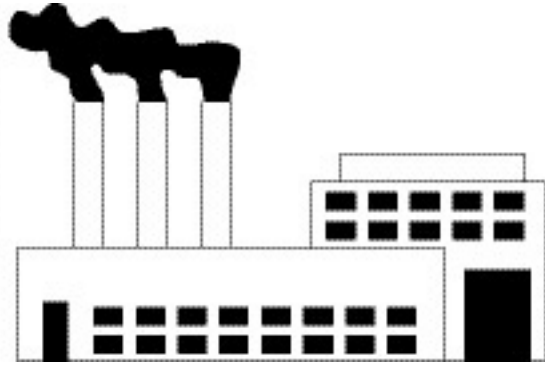
How do we measure this effect?

The ideal plant is bigger (more output without additional assets) because productive machines in a plant may break, because machines are not run to nameplate speeds, and a variety of other reasons. Maintenance has an impact on many of these items and can positively impact the others through getting involved and lending its expertise.

The easiest way to see this effect is to visualize your factory with a size proportional to output.



This is your current factory
(size proportional to output)



This is your ideal factory, or
what you could produce if everything went
right

One measure developed to evaluate factory output by the TPM folks is OEE. OEE (Overall Equipment Effectiveness), which is a measure of the amount of effective output compared with the ideal output possible from the same plant, area, or machine. A typical factory might have an OEE of 50% to 80%. The 20% to 50% that is left represents wasted resources. The waste comes from breakdowns, model changes, material problems, small jam-ups, etc. Without spending any money on expansion, most plants could increase their output by half of these numbers (10%-25%).

Although reduction in the cost of maintenance is an admirable goal (and will be dealt with extensively in this text), the real money is in increasing the OEE of the whole plant.

Everything you ever wanted to know about maintenance can be learned on Star Trek

Since 1967 Star Trek in its various forms has been a successful US TV series. It has undergone several redesigns. The maintenance message of the three main series is really all you need to know!

In the first series, the Chief Engineer was Montgomery Scott. He was a down and dirty maintenance guy from the old school. You would routinely see him crawling around the engine room with weird looking tools, fixing things. Scotty was a super repairperson with a complement of cool tools. Over time we find out that he is an accomplished engineer and designed the standards that all Star Fleet engineers use. Scotty was the 60s' vision of the ultimate maintenance guy. Scotty is paternal, tough, and competent.

In Star Trek, The Next Generation, the Chief Engineer is Geordi La Forge. Geordi is blind from birth but sees the entire Electrical Magnetic spectrum

(as well as some other cool capacities) with his visor. In 100 episodes Geordi rarely, if ever, repairs anything. If there is a problem, he waltzes up to a computer console and reconfigures the Warp couplings (or whatever). He maintains the ship completely by computer! Occasionally when something strange happens and the computer fails he is also the ultimate repair guy, but this happens infrequently. We find out that he is also a leading physicist. He is the ultimate 90s maintenance guy using the computer to fix everything. So Geordi is hi-tech, personable, competent genius that is comfortable chatting up leading theoretical physicists and can also jump in and fix things

In the third series, Voyager the Chief engineer is B'Elanna Torres. Her ship was swept into the Delta quadrant (very far from home, it will take 70 years to get home, even at Warp 10) by Q (a childish omnipotent being). Her ship has some biology built in so it can repair itself. So unless they were attacked or run into some weird anomaly in space (which does seem to happen pretty often) the ship itself can fix most things. Ms Torres spends most of her time trying to coax a little more power from the Warp engines to get home faster. B'Elanna is the ultimate 2000's maintenance person, no longer in the repair business but in the business of increasing output. She is powerful, loyal, passionate, and competent but is focused on the productive output not the repairs or maintenance at all.

We in maintenance contribute to the success of the organization. Our efforts can place the organization squarely in the middle of an admittedly narrow path. The goal of maintenance (like Star Trek Voyager) is eventually to eliminate the need for maintenance departments! The goal of maintenance is to do everything in its power to increase the quantity and quality of production, and reduce costs