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Turn Data into Information with Manufacturing Intelligence

Manufacturing intelligence systems offer manufacturers access to key performance indicators for increased troubleshooting, product tracking and downtime management. However, implementation of these systems requires careful planning to eliminate risk of information overload.

By Adam Madison, Associate Editor

When a food manufacturer experiences a salmonella scare, it no longer has to recall every item from the store shelves. Instead, it pinpoints precisely which items are contaminated for retrieval, hopefully slipping past the media's radar. That same OEM company can also make a major capital investment to its production line and know exactly how well the equipment performs against the OEM's promised efficiency rating. If that production line suffers significant downtime, the superintendent will know who's at fault.

Each of the above scenarios is achievable with the right information, explains Richard Phillips, [Polytron](#) manufacturing intelligence product manager. Though collecting all this data is now less of a challenge with new information technology and automation systems, it often remains a struggle to turn all the data into actionable information, he says.

Manufacturing intelligence systems collect information that has potential to impact business goals. For instance, production rates can be calculated across lines to determine which are underperforming and deserve the most attention. Motor temperatures and other machine characteristics may be monitored to enhance maintenance schedules to prolong equipment life, which can be an asset to manufacturers in any industry including [packaging](#) and [steel](#).

Manufacturing intelligence systems have become a strategic necessity because the sheer amount of information generated in a production facility can be intimidating. A single frequency drive, for example, can produce hundreds of data points. However, deciding which are valuable requires thorough planning, which begins with personnel interviews that determine who needs what. Phillips says many are quick to install data collection technology but later find themselves sorting through reams of unusable data. These companies experience high frustration levels and may even regress to pen and paper. They write down when machines malfunction and physically transfer that data to Excel spreadsheets for tomorrow's crew.

"People call this sneakernet instead of Ethernet because you are running around in your sneakers and getting pieces of data from everywhere and putting it into spreadsheets," Phillips says. "It should be populating automatically where possible to increase timeliness and reliability."

For all this data collection to make sense strategically for the business, users should have access to both historical and real-time data through manufacturing intelligence systems for line scheduling and overall operational efficiency. With this information they can see precisely how many units required rework and how many were produced correctly the first time. It also allows users to pinpoint all areas of inefficient labor usage.

Manufacturing intelligence systems also serve to eliminate human bias. Often operators can only guess at what might be wrong with a system fault, and their diagnosis often is debated among team members. If an operator is held responsible for the condition of a machine or quantities produced, data may be skewed to benefit the recorder. But when a manufacturing intelligence system indicates that a line is operating at 65 percent efficiency, everyone knows what that means and there is no debate, Phillips says. Nor is there a need for time-consuming detective work.

The way in which data will be retrievable from a manufacturing intelligence system should be decided early in the implementation, Phillips says. This is especially critical now that the ubiquity of smart phones and tablets enable personnel to connect with plants 24/7 from anywhere in the world.

Using Big-screen LCD monitors to display intelligence information is another increasingly viable solution for many manufacturers. Phillips recalls a consumer health-product manufacturer that installed screens on each end of its line. These screens indicated which machines were running and displayed quantities of production from prior shifts. Often this resulted in healthy competitions, as one shift tried to outperform the other.

The widening of information access is clearly revolutionizing industry. But it will only continue to progress if the right people receive the right information at the right time.

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