

The relevance of effective monitoring in the food and meat sector

To many people, our modern digital world is leading to 'information overload.' Social media gives us a real-time insight into our friends' every thought and activity; search engines provide us with facts at the click of a mouse; even watching many sports on television is accompanied by an almost endless stream of figures and analysis about the game.

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It is therefore hardly surprising that the introduction of software programs that provide information and feedback on a production line's status and performance are sometimes greeted with a degree of wearisome cynicism by factory and engineering managers? "Do I really need all this data?"

To be fair, in some cases they have a point. Software engineers are undoubtedly talented and invariably enthusiastic, and some can have a tendency to introduce features just because they can and not because they have any real benefit for the end-user.

Nevertheless, to dismiss the availability of these monitoring and reporting software systems outright is to miss a huge opportunity to improve productivity and efficiencies as part of the fully-automated 'Industry 4.0' factory.

Indeed, while Industry 4.0 has become the current buzzword for factory systems, the concept of automation is hardly new.

In the processing and packing line, equipment suppliers have over the years developed and enhanced automated solutions for practically every task and integrated these processes so that machines communicate and work in conjunction with each other.

In an industry as fast moving and competitive as the food sector, this has played a vital role in delivering the more efficient and cost-effective production environment that all manufacturers are seeking.

However, automation brings its

own challenges. Increasingly automated lines mean there are fewer personnel available to monitor machines and ensure they continue to perform to their best ability. Even a minor fault that goes undetected for a short time can lead to a loss of output and unscheduled downtime, which can impact heavily on throughput and production targets.

On the other hand, the ability to map the entire production process digitally and analyse it in real time – ideally using a cloud-based system – makes it possible to access the information remotely from any location, sometimes using mobile devices, and take the necessary action immediately. Equally important, the availability of the information enables processes to be continually optimised and quality standards raised, while also allowing predictive maintenance for all connected equipment.

Actionable information

What is essential in delivering this type of system and avoiding the claims of 'information overload' is for the information that is provided to be wholly relevant. This is what I term 'actionable information'. Data cannot make decisions; what it must do is give the end-user the power to make appropriate decisions, ones that will have a positive outcome on the entire production process.

Such systems can provide direct performance analysis focusing on the most important key indicators.

Users can see trends, batch information and statistics in real time. They can also assess how different packing lines – possibly even located in different factories or even countries – measure up against each other in benchmark tests. The software is able to gather and store information on machine runtimes, downtime and alarm logs.

Such continuous data analysis provides an extremely accurate picture of a company's packing operations. It is possible for modifications from the default settings to be monitored and their effects illustrated. User errors can be detected and remedied quickly, and



employees given appropriate training. The result is a marked improvement in Overall Equipment Effectiveness (OEE).

This type of system also provides a great deal of security to food producers thanks to the ability to take preventative action. The software knows what the intended status of a system should be and can identify even the smallest of anomalies by analysing data in real time. These discrepancies provide early indications of problems, and their rapid detection boosts output and cuts waste. The software issues warnings long before any damage is caused. Instead of waiting until a component is no longer working to respond, technicians can take preventative action and avert costly downtime.

For example, in a damp production environment, a damaged seal can sometimes result in a small stream of water making its way into a multihead weigher. This gradual process can continue undetected until oxidation occurs, or the machine suddenly fails. Monitoring with moisture sensors enables the leaking water to be spotted immediately, and the software will then issue an appropriate alert.

Another benefit is that manufacturers no longer have to rely on fixed maintenance schedules for their machinery. Ultimately, there is a fundamental problem with regular or even sporadic maintenance, which is that all operators use their machines differently, making it very difficult to predict wear. Monitoring ensures

machines are serviced exactly when required. This also makes scheduling of the work much easier to fit in with production timescales and order deadlines.

Many of these systems, including our own Ishida Sentinel software, can provide different levels of support, depending on individual business requirements. These range from real-time monitoring and reporting, to remote intervention for the quick resolving of faults, to comprehensive full service and remote support, which is becoming increasingly sought after by many food producers who want to outsource technical responsibilities, enabling them to concentrate on their core business.

Maximising potential

Data will have an increasingly important role in the future of food production. With machines such as multihead weighers, bagmakers, traysealers, checkweighers and X-ray inspection systems all already able to collect valuable information, it makes sense to make full use of the potential offered by this wealth of data. However, to maximise this potential, it is essential that the data provided is wholly relevant and that managers and engineers can make the right decisions and take appropriate actions. Key to achieving this is to ensure the supplier can match their software expertise with engineering experience and market knowledge. ■