Optimising safety compliance in food processing with EAM

IFS Ultimo

Uptime and food safety: why maintenance matters

Maximising uptime while ensuring food safety is a top priority for companies across the food processing industry, now more than ever. The added pressure that the pandemic has placed on food production requires more agile operations, which is where Enterprise Asset Management (EAM) comes in. This whitepaper looks at how software-based EAM can help companies in the food industry streamline operations and reduce the risks associated with maintenance operations. The paper demonstrates how optimised asset management translates into better compliance with food safety standards, improved health and safety, and enhanced maintenance management.

Growth of the food industry

The COVID-19 pandemic has put the global food supply chain under unprecedented pressure. Food processing has been disrupted by a combination of labour shortages, plant shutdowns, and travel restrictions.

At the same time, demand for fresh, frozen, and packaged food has soared in many countries. According to the OECD, throughout the first half of 2020, demand remained consistently 15-20% higher than in previous years. The growth of the food industry is likely to continue in years to come, with the global food market set to expand at an annual rate of over 3% between 2021 and 2025.

High levels of uptime

Many food-processing companies around the world strive to maintain high levels of uptime to meet the growing demand from the retail sector. They must also guarantee food safety and traceability while protecting workers against the added risk posed by COVID-19. Uptime and health, safety, and environment (HSE) are presently top concerns for food companies. Streamlining asset maintenance is critical to addressing all these challenges.

Asset maintenance can be a daily occurrence in food processing facilities. Any surfaces that come into contact with food during production are cleaned and sterilised frequently to prevent contamination.

Regular maintenance of premises and equipment throughout the production line is equally important. It helps prevent costly downtime while extending the equipment's lifespan. But, unless it is managed effectively, maintenance can not only cause unnecessary downtime, but also threaten food safety

The main risks are:

• Biological contamination – this may occur if a surface has not been cleaned thoroughly but may also be caused by rainwater leaking through poorly-maintained roofs, doors or windows or non-potable/wastewater from faulty plumbing fixtures and drains.

• Chemical contamination – this may be due, for example, to detergents or sanitisers used during the cleaning process or non-food-grade lubricants originating from machinery.

• Physical contamination – this can happen when external physical objects, for example small fragments or loose parts of a machine (e.g. nuts and bolts, washers, small metal or plastic components, etc.) accidentally enter food during production or maintenance. In 2019, the European Commission's Rapid Alert System for Food and Feed (RASFF) sent out 173 notifications regarding foreign bodies in food items.

Far-reaching consequences

In 2019, most food hazards reported to the European Commission's Rapid Alert System for Food and Feed (RASFF) in the UK related to the composition of products (68 notifications), adulteration or food fraud (63 notifications), and mycotoxins (58 notifications) found in the products.

Food contamination can have far-reaching consequences throughout the supply chain. It can threaten consumer health and safety, leading to costly product recalls and serious legal consequences for food producers, not to mention the eye-watering costs associated with reputational damage.

Ageing of the workforce

According to the WHO, 23 million people in Europe fall ill each year after consuming contaminated food, with 4,700 dying as a result of it. The damage to businesses associated with the food safety failures if often irreversible.

In 2019, six hospital patients died and at least nine fell ill after consuming chicken sandwiches contaminated with Listeria in a widely publicised incident. The sandwiches were served by Good Food Chain, a sandwich producer supplying food to hospital trusts across England. The outbreak was later traced to a meat producer North Country Cooked Meats, and the Good Food Chain was told it could restart business. However, the damage was already done, and both companies had to go into liquidation.

Asset maintenance also faces significant challenges when it comes to retaining knowledge, which is a top concern for over 6 in 10 asset managers in food processing. This is due to two major trends that are especially prominent in Europe: the ageing of the workforce and the skills gap. Ultimo's EAM Trend Report found that 89% of employees in technical and facilities services were over 35, with nearly 5 in 10 over 45. The report also found that "taking action to implement and transfer knowledge" was the number one concern for asset managers.

HSE: a top concern

Health, safety, and environment (HSE) is also paramount in the food industry. Research from Ultimo found that 83% of asset managers in food processing saw HSE as a top concern. Across all industries, the Ultimo EAM report found that safety and prevention was and will continue to be the most important issue for asset managers. The report also found that "taking action to continue to ensure safety" was cited among the top three steps to future-proofing an organisation.

The IFS Food 6.1 'standard for auditing quality and food safety of food products' is widely adopted in the food industry. The standard fully acknowledges the impact that maintenance can have to food safety, mandating that: "Product requirements and prevention of contamination shall be ensured during and after maintenance and repair work. Records of maintenance and repair work and of corrective actions taken shall be kept.

Common challenges to maintenance workflows that can affect uptime and food safety

Inefficient compliance management

Unless they are maintained regularly and thoroughly, premises and equipment in food processing can pose a threat to both food and worker safety. Keeping on top of maintenance procedures and schedules should, therefore, be at the heart of a food producer's due diligence and duty of care. It is also one of the key requirements that food producers must meet.

Increasingly, large food retailers carry out regular audits of their suppliers, which include analysing and evaluating maintenance schedules. Food producers must also comply with national food safety legislation as well as international such as IFS Food 6.1.

Producing all this evidence can be challenging without consistent data, which is typically due to inadequate EAM processes. The main reason for this is the lack of effective and efficient ways of gathering and recording data during planned and unplanned asset maintenance.

> "Ultimo has been a game-changer, helping us change the whole mentality when it comes to maintenance."

Outdated maintenance management

Many food-processing companies still rely on largely manual processes to keep track of their maintenance procedures. This piecemeal approach to asset management can lead to inconsistent data and, worse, errors that can translate into downtime.

Another major limitation of manual processes is their lack of insight into KPIs such as:

- Time spent on specific maintenance tasks
- Causes of equipment failure.

Without this critical data to hand, improving and streamlining processes becomes virtually impossible.

Manual EAM processes typically lack connected, mobile solutions enabling remote access. Consequently, maintenance engineers and managers have to physically travel from one site to another, which can lead to slower maintenance operations.

Lack of EAM infrastructure

The lack of a connected, software-based EAM infrastructure also limits the ability to retain and share essential know-how. One consequence of this are slower onboarding processes when it comes to new maintenance employees or, worse, lack of adequate training.

Poor HSE management

We have seen how protecting the workforce is a major concern for asset managers in the food-processing industry. According to a report from the UK's Health & Safety Executive, "proactive and reactive maintenance activities often require intrusive work involving removal of guarding systems, 'live working' to find faults, working at height, lone-working and out-of-hours work".

The report found that machinery maintenance accounted for a large proportion of non-fatal injuries to workers in the food industry. A quarter of these occurred during cleaning operations.

Typical risks

Typical risks to maintenance workers range from injuries associated with manual handling to slips on wet floors through to being hit by moving machinery.

But there can also be other, less obvious risks associated with food processing, including musculoskeletal disorders, occupational dermatitis, and noise-induced hearing loss.

Efficient HSE management process

HSE legislation is in place in most countries to ensure that minimum levels of worker and environmental protection are observed by employers. Typical requirements include conducting risk assessments, issuing work permits, and providing adequate personal protective equipment (PPE). Keeping track of all these procedures can be time consuming and challenging without an efficient HSE management process.

How to use EAM to simplify compliance

We have seen how implementing an effective EAM system continues to be a major challenge the food industry faces. This is where automated software platforms come in. If implemented correctly, cloud-based enterprise asset management systems can make a world of difference when it comes to simplifying compliance in food processing.

EAM platforms of this kind can help companies automate their compliance processes, leading to optimal data consistency. They ensure that all stakeholders involved in maintenance operations, across multiple production sites, follow the exact same process every time, minimising the risk of errors. Maintenance workers can document their operations on the go using a smartphone or a tablet, choosing from pre-set checklists. All maintenance, production, and quality managers involved receive automatic notifications on their mobile devices prompting them to review and sign the job off in just a few clicks via an app.

The latest software platforms enable users to pre-set acceptance statements or essential checklists to certify that a maintenance task has been carried out correctly and safely, including:

1. All tools are present and intact.
2. Remaining material and waste have been removed.

This way, maintenance engineers and other asset service staff can easily record their jobs, with virtually no room for errors or inconsistent descriptions. These records are automatically saved in the system and can be accessed anytime, anywhere, via the cloud, using an intuitive dashboard. This way, critical evidence of due diligence can be produced easily for auditing purposes.

How to sign off critical maintenance tasks more reliably and easily.

Whether it is a daily occurrence such as cleaning or an unplanned event, every maintenance job has to be logged. This is to ensure that all necessary steps have been taken to minimise risk to food safety, workers, and assets. Staff at different levels may be involved in the process, including maintenance engineers, maintenance managers, production managers and quality managers. App-based EAM systems now enable users to complete the acceptance process on a handheld device in minutes. A signature can be easily drawn on a touch screen and saved for future jobs.

How to use EAM to keep workers and operations safe

We have seen how maintenance and HSE go hand in hand. Well-maintained assets will reduce the likelihood of incidents that can put workers and operations at risk. At the same time, maintenance operations themselves entail a range of hazards that pose a threat to workers and assets alike.

The ability to integrate asset and HSE management in one, centralised system can help overcome such challenges. Maintenance and HSE processes can be managed simultaneously as part of the same EAM workflow. Maintenance engineers and asset service staff can access checklists on the go to ensure work is carried out safely in line with work permits and risk assessments. HSE managers can receive notifications on their mobile devices, reviewing and signing off HSE procedures in real time.

This way, they can ensure that maintenance workers are using appropriate PPE and have received the necessary training to perform specific maintenance tasks.

The deployment of EAM software platforms to manage HSE had turned out to be especially useful throughout the COVID-19 pandemic. For example, some food-processing companies have been using the technology to manage their stock of essential PPE such as face masks as well as hand sanitisers to ensure the workforce is protected against the Coronavirus.

More advantages

Another advantage of using a cloud-based EAM platform during a pandemic is that it helps future-proof organisations against unexpected challenges such as social-distancing. With some employees working from home and others on site, lack of face-to-face training and direct supervision can be an issue when it comes to health and safety. The ability to access HSE data remotely enables a streamlined, consistent process that everyone can follow no matter where they are.

The future: from maintenance to reliability management

We have seen how modern EAM platforms can help streamline asset management and HSE operations integrating the two into a centralised system. This synergy extends to other departments too, from quality management through to production. This trend towards integration is likely to continue and accelerate in the future.

Some companies across the food processing industry are already starting to realise the advantages of further integration, using EAM beyond maintenance and HSE. For example, production and quality control managers are now increasingly involved in signing off cleaning and other maintenance operations. They are also gaining valuable insight into asset management KPIs, using this data to better understand where and why incidents such as contamination occur so that corrective measures can be implemented.

Integration and centralisation can also help simplify auditing. Auditors themselves can now access the evidence they are looking for, easily and quickly, and all in one place.

Developments

Another major development in EAM is its integration with the so-called preventive or 'smart' maintenance technology. Based on condition monitoring, this sensor and data-driven approach to maintenance has been driven by the advent of the Industrial Internet of Things (IIoT) and Industry 4.0. Smart sensors are deployed to monitor the status of equipment in real time and send automatic alerts whenever critical thresholds are about to be exceeded. A work order is automatically created in the EAM system, enabling maintenance operators to intervene proactively to prevent breakdowns, maximising asset availability, reliability, and efficiency. The need for reactive and predictive maintenance is reduced to a minimum. This in turn means less time spent on carrying out maintenance work that, as we have seen, can pose a threat to safety of food, worker, and assets.

Minimise the risks

The integration of EAM with virtual and augmented reality is opening up further opportunities to minimise the risks associated with asset maintenance. These technologies enable maintenance staff to monitor and inspect assets without having to physically access them, which is when is when the safety of workers and operations is most at risk.

Similarly, drone inspections of assets, are, for example, enabling wall thickness measurements using artificial intelligence (AI) and thermal imaging. This minimises the need for maintenance staff to access assets. If insufficient thickness is detected a work order is automatically generated in the EAM system. This way, changes in conditions can be identified in a timely manner and maintenance procedures put in place.

Knowledge transfer

Finally, the integration of EAM with the latest technology is also helping asset managers address the challenges associated with knowledge transfer. Virtual and augmented reality now enable on-demand training in any location guiding workers through safe maintenance operations. This process can be integrated in the EAM workflow so that workers can access the training they need, when they need it. At the same time, HSE managers can verify, at a glance, who has received training to perform specific maintenance tasks.

Conclusion

Guaranteeing the safety of food, workers, and operations is a top priority in food processing. The effective and efficient management of asset maintenance processes, both planned and unplanned, is key to ensuring that safety requirements are fully met.

Poor management of maintenance operations

Poor management of maintenance operations can inadvertently lead to contamination of food products that can have devastating legal and financial consequences for producers. It can also lead to preventable maintenance work that can expose operators to unnecessary risks, not to mention the consequences on asset availability.

Software-based enterprise asset management platforms can provide an effective way of integrating maintenance management and HSE, achieving safer and more streamlined asset management operations. They enable a simplified and faster compliance management process that minimises error and downtime. They also enable maintenance and HSE managers to gain valuable insight into asset management operations to make data-driven decisions to improve them.

Perhaps the most exciting development in EAM is its integration with the latest smart maintenance technologies, from conditioning monitoring through to virtual and augmented reality. This integration, which is likely to continue in years to come, will enable companies across the food industry to take maintenance management to the next level: reliability management.

About IFS Ultimo

IFS Ultimo is a SaaS EAM solution from IFS, focused on maintenance & safety and well known for a rapid deployment, ease of use and an unparalleled time to value. Details about IFS Ultimo can be found at Ultimo.com.

About IFS

IFS develops and delivers cloud enterprise software for companies around the world who manufacture and distribute goods, build and maintain assets, and manage service-focused operations. Within our single platform, our industry specific products are innately connected to a single data model and use embedded digital innovation so that our customers can be their best when it really matters to their customers—at the Moment of Service™. The industry expertise of our people and of our growing ecosystem, together with a commitment to deliver value at every single step, has made IFS a recognized leader and the most recommended supplier in our sector. Our team of 5,000 employees every day live our values of agility, trustworthiness and collaboration in how we support our 10,000+ customers. Learn more about how our enterprise software solutions can help your business today at ifs.com.

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