

A question of quality: Safety and security in the Food & Beverage sector

CCTV, quality assurance and meeting
compliance in processing and production



A quality assurance issue

For many, food production is one of the most important issues of our time. Now, and for the generations to come, sustainability is a critical consideration. As consumers, producers and as legislators, the choices we make now, are likely to exert a significant influence on future food security.

Across the supply chain, traceability, from 'field to fork', there is an enormous public appetite to know where food comes from and how it is produced, and this hunger is never greater than when it comes to the topic of meat production.

There are a number of strands to this. It's about nutrition and the use of additives. It's also about ethics and animal welfare. At its heart, it's about maintaining consumer confidence by avoiding scandals and public health scares.

It is widely held that subjecting animals to stress impacts the quality of the meat produced. So, from the other side, from the perspective of the meat industry, ensuring higher welfare is also a quality issue.

BSE in the 1990s and the horsemeat scandal of more recent times shows how fragile public opinion can be and how it impacts consumption. Bad PR may permanently change consumer behaviour, turning people away from eating meat.

Quality assurance is the key to preventing and counteracting the negative impact of adverse publicity, and if the meat production industry is to continue to prosper, it simply has to raise its game.

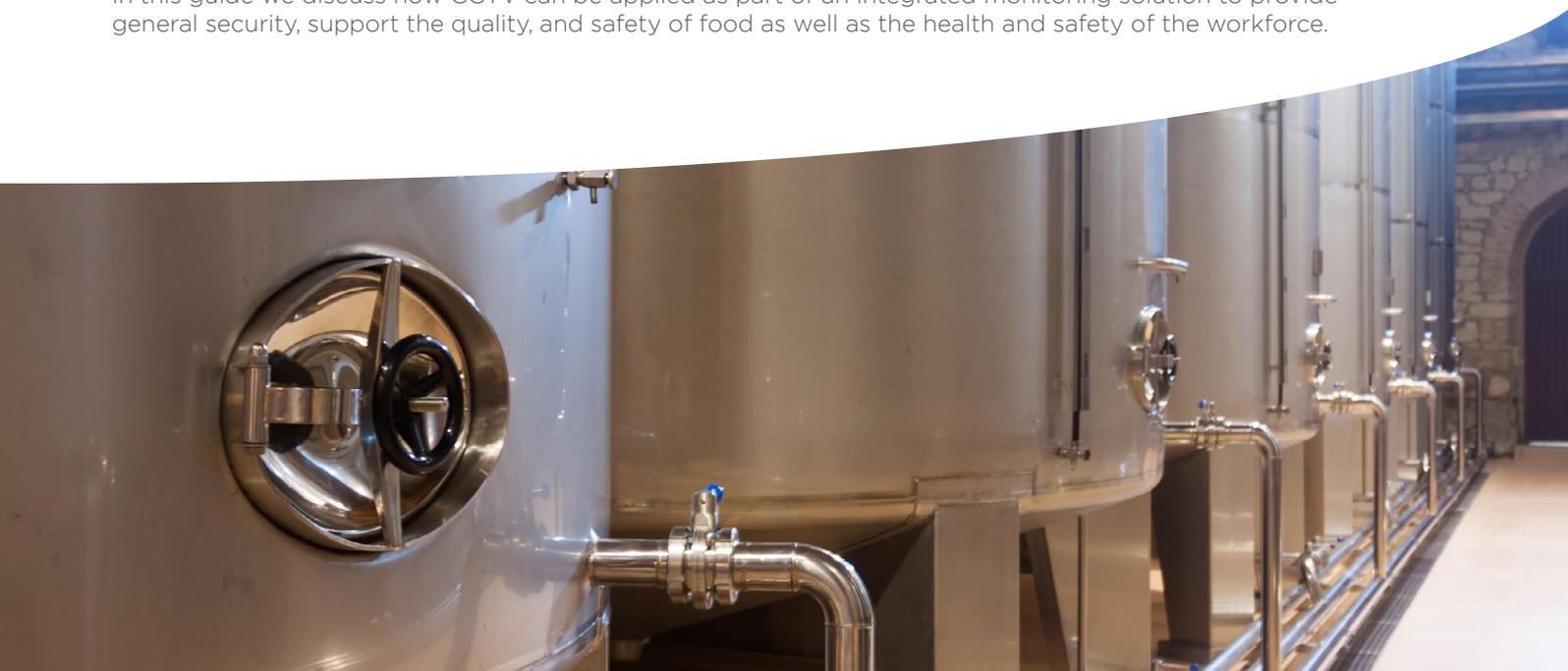
For many, making CCTV a compliance requirement for every slaughterhouse in England fixes the 'missing link' and is an important part of closing the loop on traceability and quality assurance.

However, besides ensuring animal welfare by monitoring areas where live animals are unloaded, stunned and slaughtered, CCTV has a much wider application across the Food & Beverage (F&B) sector.

Contaminants responsible for food product recalls range from chemicals formed as by-products of processing, to additives and microbes such as salmonella and listeria, and the presence of plastic, metal and glass.

Data from a study and the Food Standards Agency shows contaminated food recalls doubled in the five years to December 2017. The global insurance bill for F&B recalls is put at £240 million, with a large case in Europe costing a business in excess of £7 million.

In this guide we discuss how CCTV can be applied as part of an integrated monitoring solution to provide general security, support the quality, and safety of food as well as the health and safety of the workforce.



General protection with CCTV and integrated security systems

The importance of the general protection given by CCTV and integrated security systems should not be underestimated. This is especially true when it comes to the meat production industry.

With the trend for militant activism from animal rights campaigners well established, there is a growing worldwide movement targeting slaughterhouses; it is not difficult to envision activists expanding their activities to take in more of the supply chain.

Today's HD CCTV systems provide powerful security capabilities and features. Underlying this is the concept of systems integration. CCTV is used as the 'hub' technology into which other systems can be plugged to enhance capability to provide for the general security of F&B production facilities.

CCTV

There can be little doubt about why Closed-Circuit Television (CCTV) has become so ubiquitous – it is simply one of the most effective means of safeguarding property and people. It not only helps prevent criminal activity, it also aids identification and the detection of offenders.

The latest video surveillance technologies include HD CCTV, Wireless CCTV, ANPR (Automatic Number Plate Recognition). Deployed with powerful software technologies, including analytics, face recognition and image enhancement technology, CCTV is invaluable for identification and detection purposes.

Software can be configured to monitor for abnormal activity, such as movement in areas out of normal operational hours or a security guard absent from a point of duty. The software alerts local or remotely located security personnel so that an appropriate response can be given.

Perimeter security

The first layer of physical security of a food and beverage production site is set up through the use of perimeter fences, walls and gates. However, those that are truly determined to breach physical perimeter security will find a way. To defend against this, sophisticated electronic perimeter security measures can be put in place.

Through the use of risk assessments, bespoke systems are designed, optimising the security for each site. CCTV is an essential element of any electronic perimeter security system that effectively defends against unauthorised access to a site.

CCTV is often enhanced with a variety of technologies, including thermal imaging, Automatic Number Plate Recognition (ANPR), and motion detection.

ANPR integrated with Access Control is able to regulate the passage of vehicles through powered gates, barriers and rising bollards. In conjunction with CCTV, this creates a system capable of providing verification of entry and exit activity and that is able to alert security personnel to unauthorised or suspicious activity.

Intruder Alarms

Depending on the value of assets or the sensitivity of the activities undertaken within them, buildings across F&B sites may need to be protected against intrusion.

Intruder alarms typically have sensors at entry points to buildings such as doors and windows. Sensors can also detect motion and be placed under foot to detect people walking through or standing in areas that need to be protected.

Fire Alarms

Automatic fire alarm systems are designed to provide early warnings of fire and enable people to evacuate buildings. However, the vast majority of signals from automatic fire alarms are not activations caused by actual fires.

Besides fires, such alarm and detection systems may react to things such as steam, cigarette smoke, aerosol sprays, and light smoke from cooking, triggering false alarms. Fire & Rescue Services (FRS) are asked to attend a false alarm, this is considered to be an Unwanted Fire Signal.

Repeated attendance by Fire & Rescue in response to false fire alarm activations may result in revenue recovery action by FRS.

Access Control

Electronic access control offers significant advantages when compared to key-based systems.

Access control systems make managing entry into as well as controlling access within different areas of buildings easy. Systems can be deployed to operate a variety of entry control mechanisms, including revolving doors, turnstiles. CCTV can be used to visually verify the identity of persons presenting at access controlled points.

Access control systems provide the ability to operate entrances and exits by any of the following:

- Entering a code into a keypad
- Presenting a key fob or token
- Swiping a card
- Biometric fingerprint readers

Audio Entry

Audio entry systems allow verbal communication with callers before they are admitted. These systems enable visitors to be identified and access granted without the need to physically go to the entry point. Integrating CCTV allows positive identification of callers before granting entry.

Visual observation of an audio entry point minimises the risk of unauthorised entry by others when permitting access to an authorised visitor. This is extremely useful across larger sites, whether it is for main doors or automatic gates for vehicle access, or for mixed-use buildings where production and warehousing are on ground level and 'white-collar' activities take place on upper levels.

Beyond security: Workplace and production monitoring

The increasing use of CCTV in the workplace is a topic of some controversy. Behind this is the suspicion that monitoring has undergone something of a 'mission creep': Initially supporting workplace health and safety, the motivation for businesses and organisations is now believed by many to be the surveillance of employees.

Whatever the motivation generally, due to the Line-of-Business, there are some commercial activities where all workers need to be fully accountable for their actions. In essence, as a visual media CCTV is the best way of demonstrating the consistent performance of tasks within guidelines, best practice and applicable regulatory codes.

Key considerations for slaughterhouse CCTV

To ensure that CCTV installed in slaughterhouses is fit-for-purpose means that an operational requirement must be derived from the compliance requirements. Broadly this translates as:

Systems that may be integrated with CCTV to provide layered protection include:

- **CCTV is required in all areas of the slaughterhouse where live animals are present**
 - These areas may be broadly defined as places where livestock is unloaded, stunned and slaughtered
 - Cameras with the appropriate capability should be positioned to provide coverage throughout these areas
- **Official vets have unrestricted access to CCTV recordings**
 - Storage and playback facilities need to enable search and viewing on-demand
- **The retention period for recordings is set at 90 days**
 - Recording capability and backup needs to be adequately specified, with sufficient capacity and network bandwidth to store the large amounts of video data captured from all camera streams simultaneously

The right to privacy

HD CCTV that enables specific individuals to be identified is currently governed by the Data Protection Act and from 25th May 2018 comes under the new General Data Protection Regulation (GDPR), enforced by the Information Commissioner's Office. This governs the right to privacy of individuals and determines how CCTV footage is processed, viewed, stored, managed and shared.

This legislates to prevent misuse through unauthorised viewing, sharing or release and creates a robust information security environment to protect the privacy of individuals that can be identified from CCTV footage, including abattoir workers.

The benefits of F&B production process monitoring

Production process monitoring with CCTV enables F&B producers to achieve better efficiency and minimise costs without impacting quality. It can prevent the waste of ingredients and leads to more consistent quality standards.

This translates into a reduced need for product recall, ultimately helping preserve relationships with brands and supermarkets by reducing negative PR and protecting brand reputation.

Monitoring also supports the health and safety of workers and helps to protect investment in expensive machinery, and preventing production delays resulting from damage that may occur when processes malfunction.

CCTV monitoring of F&B production

The use of CCTV as part of a process monitoring solution is based on the ability of CCTV video analytics to detect abnormal events. For example, software monitoring of video streams from production processes can detect events such as items falling off conveyors or items in unexpected places.

Detection of abnormal or out of range conditions enables the automated shutdown of processes or alerts production process operators and managers, enabling manual intervention. Should an event warrant a review of a production run, recordings are date and time stamped and synced to the production process.

This enables a retrospective investigation to identify where problems may have first occurred and to identify batches or sections of production that may need to be checked for quality consistency. It can also help to narrow down and limit the extent of a product recall should products have entered the distribution chain.

Process analysis and technical integration enables monitoring solutions to be retro-fitted to existing production machinery as well as new machinery before it enters the production environment.

Asset tracking in production and warehouse

Aside from the production lines, CCTV also provides asset tracking capabilities, helping F&B producers to achieve better control and greater efficiency in managing their warehousing and logistics operations. Deployed in conjunction with barcodes, HD CCTV allows all assets and pallets to be tracked as they are handled in, through and out of production facilities.

SUMMARY

Efficient and effective F&B monitoring solutions from iC2

iC2 is a leading mid-market security systems provider and was established in 2001. The business is owned and managed by a team with a collective experience of over 100 years in the electronic security business. iC2 holds CCTV and security accreditations with NSI and BSI.

Since 2012 iC2 has been an approved supplier of electronic security for Associated British Foods, an international food group which includes Twinings Tea, British Sugar, ABN Agri, Allied Bakeries, Jordan's, Ryvita and Frontier Agriculture. We work with these companies to bring them powerful security and monitoring solutions maintained by us that protect staff, assets and production efficiently and effectively.

iC2 offers a complete solution tailored to the needs of today's F&B sector:

- Surveys, consults and works with enterprises to identify needs
- Specifies, supplies, installs and fully supports all solutions
- Only provides high quality and appropriate hardware solutions
- Solutions meet all appropriate compliance requirements or guidelines

A prestigious client list also includes luxury international boutique brands, top flight sporting venues, retail developments and educational and social environments, demonstrating how solutions are deployed to meet a variety of requirements.

REFERENCES AND FURTHER READING

Slaughterhouse workers admit causing sheep pain by hacking at their throats with blunt knives and hurling them into walls

The Sun online edition - News story

<https://www.thesun.co.uk/news/5412594/animal-cruelty-slaughterhouse-sheep-hacking-throats-knives/>

Animal Rights Activists Target Slaughterhouses as Worldwide Movement Grows

Medium.com - News story

<https://medium.com/@caroleraphaelle/269-liberation-animale-occupies-slaughterhouse-in-france-464e260ec46e>

Ministers consider mandatory CCTV in cutting plants

Farmers Guardian - News story

<https://www.fginsight.com/news/news/ministers-consider-mandatory-cctv-in-cutting-plants-51535>

Contaminated food recalls rise: Data shows number has doubled in the past five years

Mail Online - News story

<http://www.dailymail.co.uk/news/article-5219427/Contaminated-food-recalls-doubled-past-five-years.html#ixzz571D7Obz9>



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About Us

Keeping you safe and secure at all times

ic2 provide you with innovative solutions tailored to you and your sector. We are London-based with a national team of surveyors and engineers that work closely with our clients throughout the UK and internationally.

Our unique consultative approach allows us to tailor bespoke systems to your individual requirements, ensuring that your operational requirements are met.

We appreciate the need to demonstrate the best value to you every time and as a technology-led company, you can expect our cutting-edge and ground-breaking approach to serve your needs for many years to come.

Please feel free to contact us to discuss any requirements you may have. We are happy to give you impartial advice, should you have any queries.

