The value of digital maturity in your food safety processes

With the food supply chain modernising and demands growing for increased transparency around food safety, food manufacturers are coming under pressure to digitise. Rob Rogers, Senior Advisor Food Safety and Regulation of Mettler-Toledo believes they should see it as an opportunity to unlock value for their businesses.

by Rob Rogers, Senior Advisor Food Safety and Regulation, Mettler-Toledo.
www.mt.com

Food safety digital maturity is a term that food manufacturers can expect to become familiar with, if they are not already so. Any discussion of it must begin with the answers to two questions: firstly, what is food safety digital maturity? Second, why is it important?

The first answer comes in two parts. Food safety is well understood – it is, or at least should be, one of the highest priorities for any food manufacturer.

What is digital maturity?

Digital maturity, in this context, refers to the increasing digitalisation of food safety processes (including the documentation of them) throughout the food supply chain.

This involves the collection, storage and sharing of data between supply chain partners, theoretically delivering improved legislative and regulatory compliance. It also provides greater transparency and track and trace capabilities, and more efficient manufacturing.

To answer the second question, why is food safety digital maturity important? It can be seen that the industry is already moving in this direction.

Food manufacturers are being pushed towards transparency by both regulators and customers (retailers).

It is an unavoidable progression. Added to the requirements of regulators and customers is a further dimension: that food manufacturers can expect to operate more productively, efficiently, and profitably by embracing the digital transformation that leads to food safety digital maturity.

This is where the discussion of what value food safety digital maturity has for food manufacturers begins. Value is critical if they are to make this journey because it is not without costs.

There will almost certainly be some level of investment required in digital infrastructure, advanced processing and product inspection systems that facilitate better standards of both food safety and digital maturity. For example, temperature sensors and controls installed at critical control points such as storage and transport give real data that proves the risks of biological/bacterial contamination are being reduced by best practice.

The latest product inspection technology comes with software for automated data collection, analysis and networking with cloud- or blockchain-based applications.

The key point is that these upfront costs will soon be more than outweighed by the value that food manufacturers will realise through food safety digital maturity.

Some of this value, as we shall see, is more or less immediately quantifiable, while other aspects of food safety digital maturity are perhaps less so, but valuable all the same.

Bottom line

The digitalisation of documenting food safety processes provides value in areas such as production line efficiency, quality control, regulatory compliance, and supply chain transparency. It must be said at the outset that every food manufacturer's situation will be very different, and therefore the challenges, costs and value that can be unlocked through food safety digital maturity will also change from one manufacturer to another. Even so, generalisations still do a good job of illustrating where value can be found. Consider these:

- **Reduced costs for managing products with quality issues:**
Digital systems can provide automated, paperless documentation of rejected products required for compliance, with information collated for reports and trend analysis. This also includes possible reduced rework when a potential food safety hazard is identified sooner.
• *Estimated possible saving: 11%.*

- **Reduction of production costs:**
Digital systems can perform continuous monitoring of areas such as production,

product inspection, logistics management and resource planning.

Automatic notifications can advise of negative performance trends that can be quickly rectified to improve performance. In turn, this might reduce costs from issues such as product giveaway and unplanned downtime.

- *Estimated possible saving: 5%*.

● **Reduced time to access production critical data**:
Continuous monitoring and automatic data collection by digital systems provides immediate visibility of this data for management to solve issues, reducing reporting times and assisting with more productive and safer use of personnel resources. With less need for workers to be on the production floor, 'lights-out' production is encouraged.

- *Estimated possible saving: 15%.*

● **Reduced audit and compliance management costs:**
Instead of manual collation and preparation of documents required for audits, digital systems can perform continuous monitoring of machinery/processes in areas such as production, product inspection, and logistics management. Businesses benefit from continuous compliance-related data capture, making the preparation and accessibility of reports and documents for audit faster, more efficient and less prone to errors and missing data. Potential fines can therefore be prevented.

- *Estimated possible saving:*
  - *Personnel costs: 35%*
  - *In fines: 100%*

The full calculations behind these examples can be found in Annex A, Mettler-Toledo Food Safety Digital Maturity Whitepaper.

The examples provide a clear benefit to a manufacturer's bottom line, but there are also less easily quantified – but arguably no less important – examples of the value that food companies can realise from pursuing food safety digital maturity.

Prominent among these is the ability to provide the supply chain with complete track and traceability of every product that is manufactured. This helps to meet regulatory and customer (retailer) compliance requirements. Should a problem occur, and a product recall needs to be made, it helps the manufacturer to implement a faster root cause analysis and a more targeted recall.

This might enable them to remove smaller batches of faulty products, instead of recalling bigger volumes just to be on the safe side. In this single example, there are benefits of reduced cost and waste, and better brand protection and supply chain relationships. A further intangible benefit of food safety digital maturity for food manufacturers is that by continuous monitoring of food safety processes, they can be more confident that products shipped are of the highest quality.

At different levels of the business, the wealth of data generated by digitalisation gives operators and management valuable insights into true production performance, which can translate to better decision-making that positively impacts on the business for the future.

Get started

The value that food manufacturers can gain through food safety digital maturity is significant and reaches into several aspects of their business. As already mentioned, there is likely to be an initial cost in building the digital infrastructure and ensuring that it integrates with an overall digitalisation strategy developed for optimum effectiveness with supply chain partners.

The cost factor should not be seen as a barrier. As we have seen, food manufacturers stand to gain far more over time in terms of the value that food safety digital maturity delivers.

Manufacturers also worry that such a project will be too difficult to implement, and that they don't know where to start. These are reasonable considerations, but they also should not be seen as barriers that are impossible to overcome.

Food safety digital maturity might seem complicated, but the concepts behind it are in fact very simple, and can be summarised in three steps:

● Connect your devices.
● Collect food safety relevant data.
● Use that data to optimise processes, networks and supply chain relationships.

There is no exact blueprint for the food safety digital maturity journey. Every organisation is different, has its own specific role to play, defined by the nature of its influence on food safety within the supply chain, and its own unique starting point, based on its current level of digital maturity.

Several key actions can be taken by all companies to advance the journey:

● Firstly, start a process of auditing the existing food safety data and ask themselves if they are collecting the necessary data that will enable traceability and compliance.

● Start making a strategic plan as to how data will be collected and stored. Analogue technology will need to be replaced with digital; manual processes should, where possible, be automated; and data that is held on local servers should be migrated to the cloud for greater connectivity.

● Investigate any gaps in expertise and start reaching out to potential partners that could fill those gaps. These partners could be providers of technology for managing food safety issues such as bacterial or physical contamination, or infrastructure providers such as those working in cloud connectivity and blockchain.

● Finally, food manufacturers must consider how they will oversee the cultural changes that must go hand-in-hand with these technological changes. For example, the systematic testing of machinery needs to become part of this culture. Instead of occasional random testing to tick a few boxes, it must be a continuous programme of testing, regularly and deliberately undertaken, and with data collected being stored for easy access when required.

An important message to convey is that manufacturers should start the process of digital transformation sooner rather than later.

Food safety digital maturity is going to be necessary – governments, regulators and customers want greater transparency in the food supply chain, and the digitisation and automation of food safety processes has been identified as critical to the levels of transparency required.

For food manufacturers, once they begin to understand that there is great value for them in food safety digital maturity, the situation is quite simple: the sooner they start working on it, the sooner they will unlock that value. ■