E-book

The future of manufacturing

Quality control in the Industry 4.0 era.

Sage

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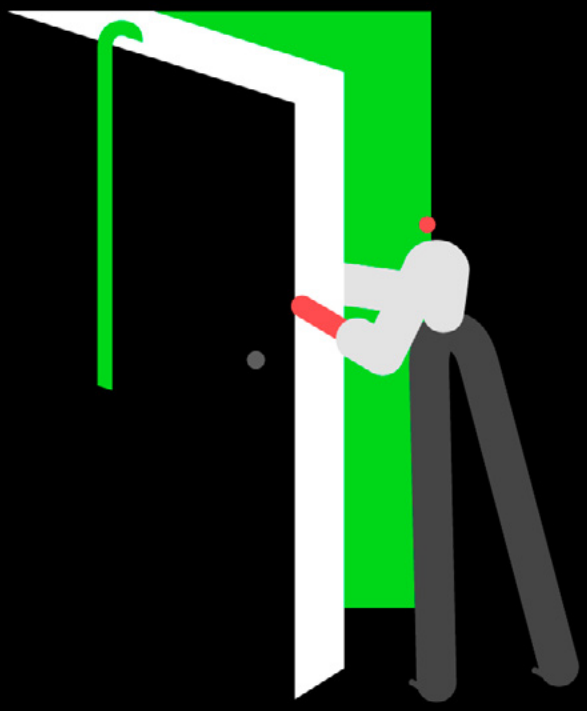

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The importance of quality

In manufacturing, quality is crucial, having a direct impact on profitability and the bottom line. The consequences of poor quality can hit a business hard. Through social media, online feedback and the press, the reputation of a brand can be devastated.

Ensuring quality is maintained is all about keeping the customer happy while keeping costs down. However, there are numerous pressures making this more difficult for businesses.

These include:

- Keeping customers satisfied while reducing cost.
- Increased product complexity.
- Multi-echelon supply chains.
- The need to work in a global environment.
- Growing compliance and regulatory requirements.
- Concerns about safety, traceability and auditing/reporting.

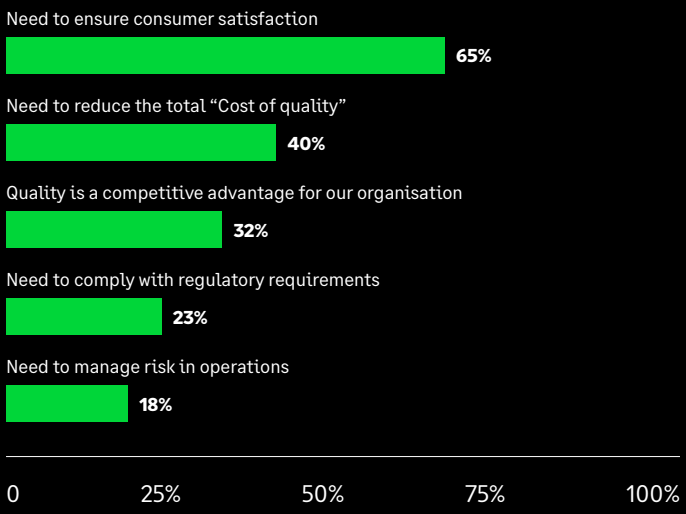
These pressures are driving businesses to redefine the way they think about quality, which can be particularly difficult if quality-driven culture is lacking in its DNA. Manufacturers must have quality ingrained in their processes, which should include supply chain visibility and compliance throughout.

The importance of quality to customer satisfaction

According to Aberdeen Group in 2014, two thirds of discrete manufacturers identify ‘consumer satisfaction’ as their top pressure to improve their quality management. This still stands today.

Manufacturers should understand that quality is the best weapon in the fight for customer loyalty—with increasing competition, one quality issue can destroy the loyalty of a customer and lose them for life. Good quality can also be a competitive advantage—it can promote a manufacturer’s brand image and allow them to distinguish themselves from their competitors.

Discrete Manufacturing
Percentage of Respondents, n = 219



The importance of quality to compliance and regulations

A lack of quality risks non-compliance, the costs of which can cripple a business.

Manufacturers working from a Bill of Materials (BOM) need to make sure that the component parts and materials are suitably compliant—non-conforming finished goods and lower level parts could result in product recalls, which are hugely damaging. It's not just the cost of replacing an order or paying for the damage it causes—it can significantly impact brand reputation and destroy customer trust. It is not difficult to imagine the negative impact of a product recall in the automobile industry, for example.

Quality is a priority for manufacturers, but so is cost. It's important that maintaining high quality products doesn't become too expensive. It might be easy to target prevention and assurance costs, but this could lead to product failure and risk.

How can manufacturers ensure end-to-end quality management?

What can manufacturers can do to ensure end-to-end quality management throughout their processes?

1. Get the business focused on improvement
A focus on quality must start from management.

Manufacturers must think about:

- **All levels of the organisation having defined roles and responsibilities in case of an adverse event**. A company's ability to quickly respond to quality issues reduces the overall cost of any quality incident, as they are better structured to act. This helps prevent product that doesn't meet quality standards from shipping, while making sure the product that does keeps on-track for on time delivery.

- **Making it an executive priority to improve quality management.** This commitment would validate the message of quality and make sure it's a key strategic focus at all levels of the company.

- **Having a centre of excellence that exists to share best practice.** This is not about culture alone—it also ensures that there is mechanism and process within the company.

2. Understand quality performance through data
To understand how they are doing on quality, a manufacturer must make sure they have data on how they are performing. It's why the proper use and management of data is crucial.

Manufacturers should think about:

- **Maintaining and managing quality data in a central application.** This allows easy access to the critical information needed to provide traceability and improve decision making.

- **Making sure a quality management system is standardised across the business.** This can harmonise disparate point solutions which will improve quality. Manufacturers can also collect quality information in real time, as well as reduce errors.

- **Having quality data collected automatically across the business.** This can help to ensure compliance and traceability through the process.

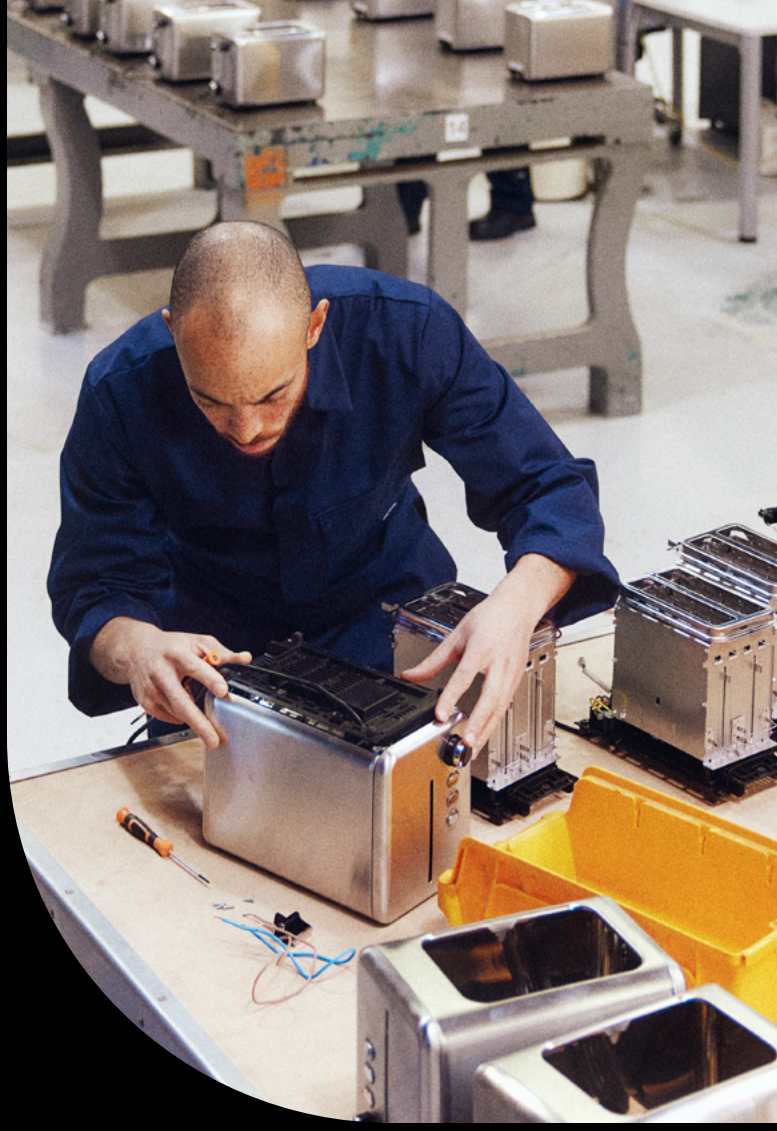
- **Using analysis to monitor real-time quality data.** This can turn quality data into insight. Access to the data in real time can improve the reliability and control over manufacturing processes. This will make quality an integral part of production execution.

From supplier and distribution to customer feedback, discrete manufacturers must be able to use data to track and trace products at any stage in the value chain—with access to the right data to detect and understand where non-conformance occurs.

With the right technology, such as a business management solution, manufacturers can build a quality system that is an integral part of production and extended across all areas of the business. With insight on quality, manufacturers can react to quality problems at their source. Products that don't meet required quality standards can be stopped from being shipped, keeping customers happy and eliminating the risk of recalls.

Improving quality through the systematic monitoring and analysis of process can positively impact the bottom line—increasing profitability.

Extend quality across the supply chain



Most discrete manufacturers work with a network of global suppliers, both locally and globally, to build their products. This means that they are all faced with challenges when it comes to managing quality throughout the supply chain.

To ensure supply chain quality, discrete manufacturers should ensure:

- **Processes are in place for collaborating with suppliers.** Suppliers should be viewed as strategic partners—key contributors who are delivering quality supplies. They should share ideas on how to perform better, with regular planning sessions to improve quality performance.
- **Real-time visibility into supplier quality.** Manufacturers should ensure that they have real-time visibility into supplier quality performance at the BOM sub-assembly, parts and material level. This will allow manufacturers to discover and fix problems before they escalate, lowering cost and dealing with supplier quality issues through field deployment.
- **Standardised quality planning processes to improve supplier quality performance.** The use of cloud technology could allow manufacturers and suppliers to share information across disparate or siloed systems.

Manufacturers must build a culture of continuous improvement

It's important to remember that managing quality should be an ongoing and evolving process.

Discrete manufacturers should think about:

- **Continuous improvement teams that are focused on improving quality processes across operations and suppliers.** Manufacturers should build cross-functional teams aimed at making improvements across the business. These cross-functional teams can help drive buy-in which can develop a quality-focused culture.
- **Regularly performed supplier audits to improve performance.** This helps businesses create a culture of continuous improvement, providing visibility into historic and current performance.
- **Using analytics to provide insights based on captured quality data.** Quality data can support manufacturers in continuous improvement and better decision making.
- **Regularly performed mock recalls benchmarked to improve performance.** Manufacturers should always be prepared, and mock recalls can keep issues of product quality and traceability in mind.

Quality manufacturing needs the right technology tools

To get control over their processes, manufacturers must have the right approach to technology.

Through Industry 4.0, they can become a data-enabled 'connected enterprise', creating a foundation in process control and automation that can support quality management.

Otherwise known as the fourth industrial revolution, the increase in data and digitisation delivered by Industry 4.0 is a revolution in the way businesses and industries like manufacturing can bring improvements in productivity, efficiency and quality.

Businesses should incorporate solutions that can break down the silos that standalone solutions bring—creating a cross-functional communication and collaboration that synchronises and ingrains quality across the business. Through technology, they can ensure quality initiatives go ahead.

Industry 4.0 also provides opportunities to improve quality through:

- Enhanced product customisation.
- Increased interaction with the customer.
- Cloud software resources.
- Collaboration opportunities.
- Data-based value design.

In the future, we'll see Artificial Intelligence (AI) having more of an impact when it comes to product quality. Machine learning and algorithms could be used to inform manufacturers of production faults that will cause issues with final product quality. AI could track subtle anomalies early, meaning a high quality is maintained and the associated costs minimised.

AI could also improve the ability of manufacturing robots to handle more complex tasks and make autonomous decisions based on real-time data. This can optimise manufacturing processes and improve overall quality. AI could also be used to improve products at the design phase, offering solutions through up-to-date scenario and performance data.

Why Sage X3?

Sage X3 provides a faster, more intuitive and tailorable business management solution for your growing enterprise, delivering favourable ROI and a more personalised experience for businesses than traditional ERP systems.

Sage X3 delivers value across multiple industries for large thriving customers in over 90 countries around the world, supported by over 480 business partners and more than 1300 certified consultants.

Embrace Change at Speed: Faster, more intuitive, and better tailored solutions than conventional ERP for organisations looking to retain their competitive advantage by increasing their agility and embracing change.

Sage X3 delivers comprehensive business management capabilities from supply chain management to manufacturing through to human resource and payroll management capabilities. This is further complemented by over 50 add-on solutions providing additional industry-specific functionality.

Along with comprehensive multinational business management, Sage X3 offers support for 18 different industry verticals ranging from food & beverage manufacturing through to industrial machinery manufacturing and FMCG distribution.

This ability to support multiple adjacent verticals allows Sage X3 to support the entire value chain from seed to sale or farm to fork.

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