E-book

# The future of manufacturing

Visibility and Traceability in the Digital Age.

Sage

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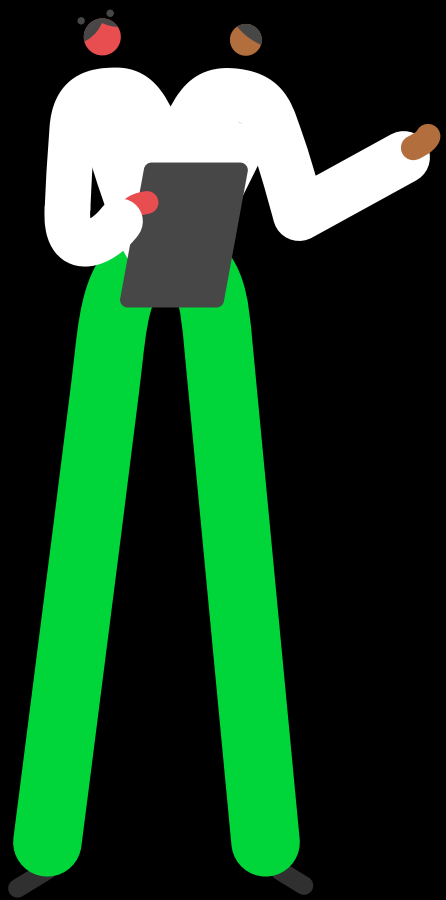

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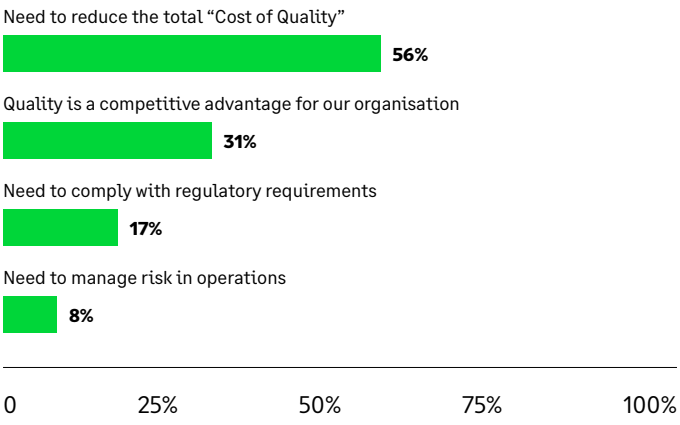
# Manufacturing visibility is vital

In a complex environment, manufacturing leaders that understand what's happening in the business have a distinct advantage. This comes with access to information—not just about data, but also about insight into systems and processes so they can use technology for visibility, agility and responsive into today's business environment.

But what are the biggest challenges? Leading manufacturers were asked by Aberdeen Group to indicate their top two pressures, which still holds true today.




*% of respondents n = 85, Source: Aberdeen August 2017*

Managing growth and keeping costs down were obviously top priorities, but the research also indicated that manufacturers feel greater visibility into their data is essential.

Information allows manufacturers to:

- Make quicker decisions, often related to products and materials.
- Share data with the extended enterprise.
- Adhere to regulatory requirements, through data sharing with the relevant bodies to ensure compliance.
- Confidence that customers they are getting quality and safe goods.
- Understand where materials have come from.

# Why traceability is vital

As manufacturers expand internationally, their commercial pressures and expectations increase. By using information to improve quality, reduce inefficiency and manage the threat of recalls, they have enough information to ensure full traceability.

For discrete manufactures, it's important to understand the difference between 'tracking' and 'tracing'.

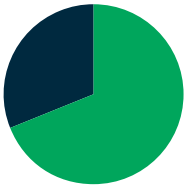
- Tracking occurs when a manufacturer sees how parts progress from one sequence to the next, and how it moves through the manufacturing process through location data. Internally manufacturers can see where parts are, who's worked on it, and how long until it's finished.

- Tracing focuses on authentication rather than progression. Tracing allows a manufacturer for example, to identify the origin or a part through records and supply chain visibility. With data such as certification of origin and purchase order numbers, parts can be linked to their sources in the supply chain.

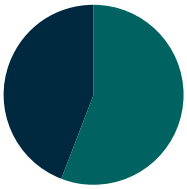
Tracing is more complex than tracking. Tracking can fall under the responsibility of one company, but tracing needs many of the businesses involved in the supply chain to comply. It can show whether a product is what it claims to be, which is important in industries such as healthcare where counterfeit products can cause serious problems. As well as providing authenticity, tracing can also ensure accountability across the companies involved in the supply chain.

According to Aberdeen, leading manufacturers are more likely to have full traceability of components and items both upstream and downstream.

**Traceability of components and items throughout the purchasing, manufacturing and sales processes**



**69%**
Best-in-class



**56%**
All others

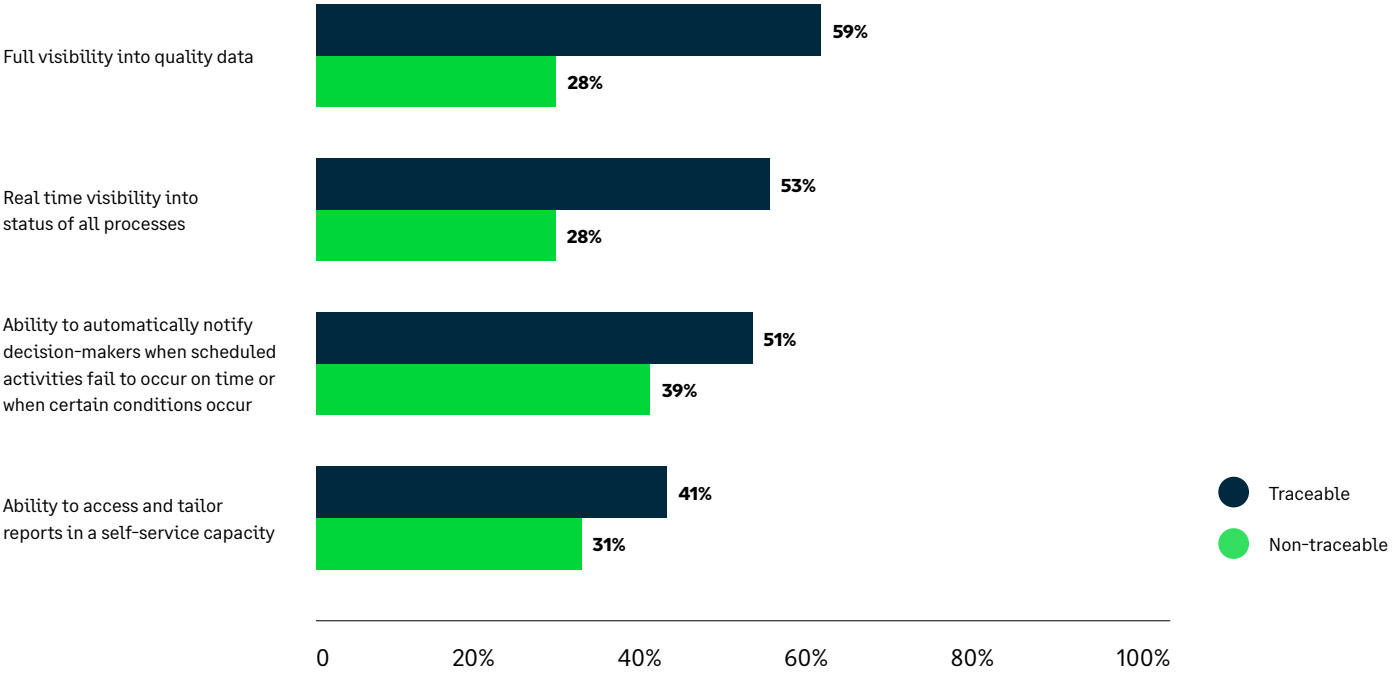
*Source: % of respondents n = 85, Source: Aberdeen August 2017*

# What data capabilities can traceability provide?

Manufacturers with full traceability will benefit from capabilities related to operational visibility.

Traceability provides manufacturers:

- Real-time visibility into the status of all processes.
- Automatic notifications that allow businesses to be more informed, allowing them to react to events such as non-compliance or demand triggers.
- The ability to report and share product and materials data with suppliers and customers, allowing them to understand where materials came and where they went.



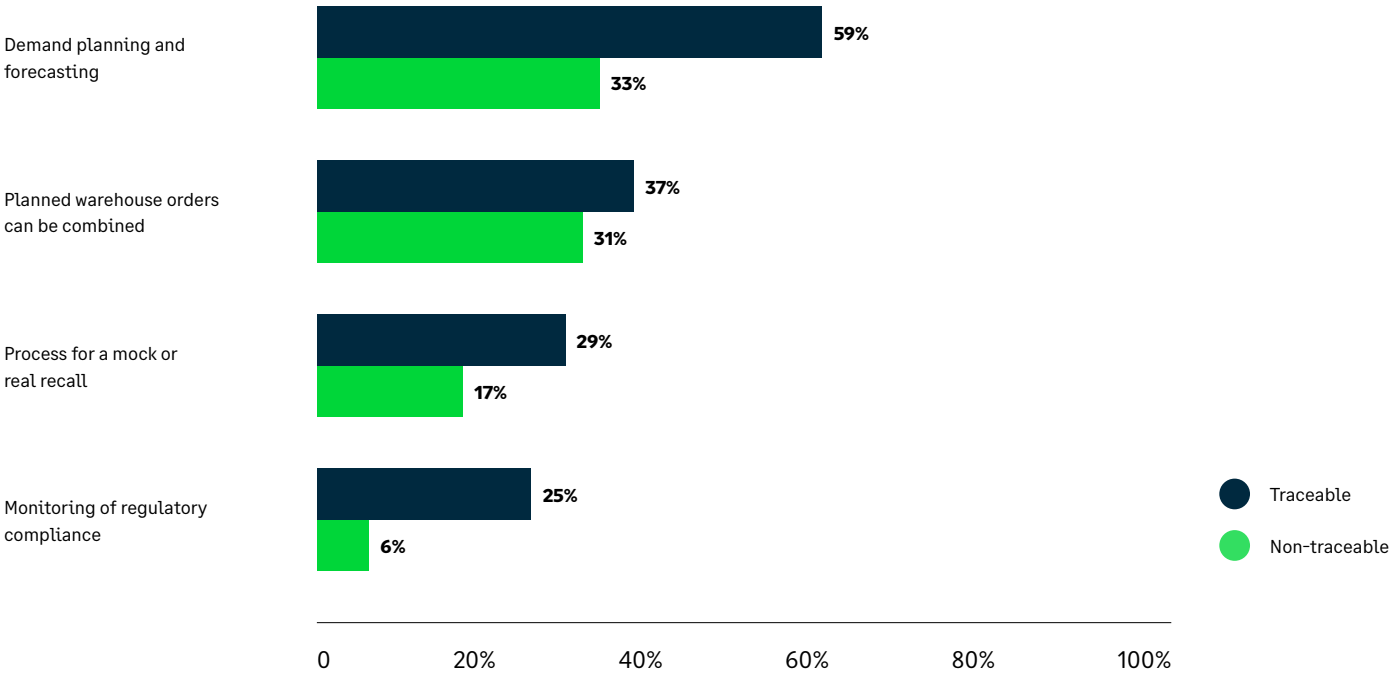

*% of respondents n = 85, Source: Aberdeen August 2017*

# How can traceability improve management, efficiency and compliance?

## Traceability provides the visibility needed for manufacturers to improve their operations.

Traceability allows manufacturers to improve their operations by:

- Monitoring for regulatory compliance—this can avoid compliance issues which can lead to unhappy customers, damaged reputations and significant fines.
- Reducing the risk of product recalls.
- Promoting efficiency and improving decision-making.
- Better management of materials.
- Improving demand planning.
- Better managing logistics.
- Arranging better terms with suppliers.




*% of respondents n = 85, Source: Aberdeen August 2017*

# Visibility can help manufacturers manage disruption and quality

Business leaders expect supply chains to operate on time, and manufacturers need to have visibility that allows them to avoid disruption—this could be shipment, supplier, product quality or customs issues, or those forced by regulator or pricing pressures.

To reduce disruption and improve quality, businesses need to take control and ownership of their supply chain. This could take the form of having the right technology which supports real-time visibility into:

- In-transit shipment status.
- Inbound supply chain data needed for decision making.
- Supplier quality and manufacturing processes.
- Traceability/genealogy at the item level.

Manufacturers that can best deal with disruption will have local and international visibility, as well as the status of the supply chain, allowing them to understand the location and timing of stock movement from origin to destination.

Having visibility into supplier quality and processes gives an advantage to manufacturers as they will be able to resolve quality and manufacturing issues before a product is made and shipped—this is much cheaper than trying to fix it after the problem is revealed. They can work with suppliers to solve issues at the source, reducing the risk of unsatisfied customers and the costs of after-care to resolve issues with faulty or poor quality products.

Item-level traceability is also key in helping manufacturers with quality and recall issues, particularly if they're working globally. Item level traceability also allows manufacturers to verify material certifications for all suppliers, particularly if material quality can actively affect the performance, life or appearance of a product.

# Why manufacturers should embrace Industry 4.0

There are new and emerging technologies that allow manufacturer to capture transactional and product data. The insights that come out of this data are at the core of traceability.

Here are three ways that new and emerging technologies can help improve traceability:

**1. The Internet of Things**
Through the Internet of Things (IoT), devices can be connected anywhere, at any time. Using labeling technology such as radio-frequency identification (RFID) and quick response (QR) codes allow data to be collected that tracks a product's full journey through the supply chain. Anything can be recorded—from the status during transport to the source of materials.

**2. Big data analytics**
Using big data analytics, manufacturers can see where a problem has occurred and stop it from continuing through the supply chain. With unplanned events and potential crises such as tainted products in the supply chain, they can respond quickly, having identified, tracked and traced everything.

**3. The cloud**
Manufacturers can now take advantage of cloud solutions, with software managing aspects such as system infrastructure, operating system, database and applications. This allows them to spend less time and energy on repetitive admin-heavy tasks and focus more on important operations.

**Traceability equals visibility**
To achieve full visibility of traceability in the supply chain, IoT, big data analytics and the cloud can be integrated into a business management solution. These should be designed with the manufacturer in mind—broad enough to log transactions across the supply chain, yet deep enough to offer industry-specific functionality. These include the logging of source materials, results analysis, a way to conduct preventative actions, and adherence to strict regulations.

# How a business management solution can support traceability

**It can eliminate variables**
Manufacturers should minimise, and ideally eliminate, any unknown variables that might affect compliance. Standardisation breeds consistently across the organisation, leading to automation opportunities when processes are documented and standardised.

**It can integrate manufacturing operations with product design**
This can cut costly processes that require customised equipment and controls to manufacture the product and maintain consistent quality levels. Innovation can be fostered from both sides of the product development process, from design to manufacturing, and back again.

**It can aid quality management**
Having full visibility into all data can provide an early warning to potential deviations or out-of-tolerance conditions at the equipment or product level, potentially avoiding a quality problem. Having visibility in real-time requires system integration between all your enterprise applications.

**It can offer full visibility into quality data**
Business management solutions can keep records in a central database that allows easy updating and automated data collection. Dynamic documentation would update records automatically in the event of a change in supplier, for example.

# Why Sage X3?

Sage X3 offers manufacturers a comprehensive, real-time solution that delivers accurate, up-to-date data that identifies and mitigates the consequences of product recalls and other supply chain issues.

**With Sage's solution, manufacturers can:**

- Rapidly implement and comply with new regulatory requirements and stay on the right side of them with all teams.
- Run insightful reports that can be used within the business—and for suppliers, customers and regulators—from a single source of centralised data that includes information from the entire distribution chain.
- Identify the root cause of product defects and the extent of supply chain contamination as quickly as possible.
- Communicate effectively with stakeholders, customers, and the rest of the supply chain during product recalls.
- Systematically conduct additional efforts to prevent product recalls and mitigate their consequences.
- Maintain and execute crisis management plans.

# About 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.

Get a Business Review or contact our Sage sales team to learn more.

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The implementation of ERP systems bring many benefits, such as increased income, higher productivity, and better communication. X3 Consulting are a trusted Sage partner specialising in Sage Intacct and Sage X3 manufacturing implementation.

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