

Enterprise-wide visibility: the future is within your reach

RFID: Enterprise-wide visibility through information-enabled industrial automation will soon be a strategic imperative to achieve business growth.

Today's manufacturing landscape is changing. As technologies such as enterprise resource planning (ERP) systems, information-enabled automation and Ethernet on the plant floor become more common for manufacturers, companies now have an opportunity to gain better insight into their production processes. Manufacturers can no longer afford to view their operations as an afterthought, but rather need to look at them as an area that can have a major impact on the growth of the company.

Accessing production data

With more complex supply chains and expanded production and distribution, companies need better visibility into how a product is made – particularly for more complex products. Consider the modern car. Today's vehicles include parts and components from dozens of suppliers located across the globe. The brand owner for that vehicle needs to know where each part is manufactured, if it adheres to government



“Tracking and tracing tools provide greater insight into production, helping to identify opportunities for improving operations”

regulations, when it will be available, how many will be available at that time, etc. This can be a complex process to say the least. Government legislation has required many manufacturers to implement procedures, systems or applications that maintain visibility into their raw materials and provide detailed production documentation. While companies have previously documented production details on paper, many regulated businesses have realised the need for electronic-based systems that can more quickly and accurately provide production data. However, such integrated solutions that provide visibility into the production process have proven to be beneficial and necessary for non-regulated industries, as well. This level of insight will soon become a business necessity for global manufacturers in any industry.

Savvy manufacturers today are implementing tracking and tracing tools to identify the best opportunities for improving operations. By documenting production processes and identifying the costs of each stage, plant managers can better identify areas for improvement that will lead to the highest cost savings. Collected through tracking tools, data can provide a more complete view of the actual cost of manufacturing each product, including data such as the actual amount of raw materials used, yield from the conversion processes, quantity of quality product produced, and amount of scrap generated.

Data from tracking and tracing applications also can be compared to actual-cost data in the company's business system, enabling a step-by-step comparison of actual costs associated with each part of the manufacturing process.

Tracking and tracing procedures and applications also assist manufacturers in responding to product recall situations, especially those that threaten a company's reputation. In these situations, companies must quickly determine the source of the production program that

triggered the recall. When raw material is a factor, companies determine which products may contain the material, and then expand the recall to ensure that none of the adulterated product is left on retail store shelves.

Many manufacturers have gone one step further by implementing radio frequency identification (RFID) to help facilitate product tracking. Data gathered through a tracking and tracing solution can be encoded with an RFID tag, passed downstream into the warehouse at a pallet level and then into the supply chain, greatly enabling the ability for a manufacturer to retrace steps from production all the way to retail shelves in the event of a product recall.

For the pharmaceutical industry, RFID tags have the potential to play a crucial role in helping manufacturers and retailers minimise counterfeiting of drugs. Governments in many countries already have recommended that RFID be part of an incremental approach to prevent theft, augmenting other tools such as tamper-proof packaging, bar codes, and hidden inks to help ensure drug integrity. When manufacturers implement such a tracking and tracing system, they have much more accurate information on where products were shipped and which components were used to manufacture each product.

More and more companies are investing in systems designed to connect an ERP system to their factory control systems. The advent of the Internet and associated interoperability standards is enabling a new breed of information-enabled factory control systems. These information-enabled factory controllers can process the data locally and make that information available to the MES and ERP systems through Internet interoperability standards like web services, manufacturers can dramatically reduce costs and improve visibility.

Realising production benefits

Companies can utilise this level of availability at a variety of levels in the organisation to drive productivity, improve quality, and reduce business risk.

Customers expect product consistency and quality. From line-to-line and facility-to-facility, products carrying the same brand name must maintain equal standards and qualities. Failure to do so can result in uneven or declining sales and damage valuable brand equity.

Being able to maintain consistency across various lines and facilities requires having enough correlated data that can be analysed to identify needed improvements in operations. But even if your company doesn't have the resources to make the investment, witness peers and gather their input, so you can use the information to prepare for the future.

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