

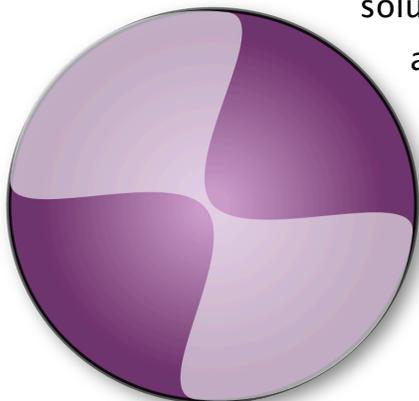
TYING THE SHOP FLOOR TO THE ERP SYSTEM

A History of IT Strategy

In the years leading to 2000, many manufacturers realized it was necessary to prepare for a potentially disruptive transition in the IT functions when the turn of the century arrived. With thoughts of internal systems not functioning properly – or even stopping the manufacturing processes altogether – action was required.

Many enterprises solved some of their problems by deploying on-premise ERP systems that were rooted in accounting and Human Resources functions and provided a short term solution. For these applications, the manufacturing processes are an afterthought. These systems were designed with an activity which starts on the top floor, and filters down to the shop floor – which is where, in the manufacturers' world, the rubber meets the road.

It wasn't until after companies successfully traversed the dawning of the 21st century that they realized the best ERP solutions actually start on the shop floor and migrate up to the top floor, not vice versa. It was the manufacturing processes on the shop floor that required refining and improvement before the accounting and HR functions.



Summary:

ERP on the Shop Floor is as critical to the viability of the enterprise as any component in the execution of manufacturing.

High performing manufacturers have found that full integration of real-time operational data collected from the shop floor to the top floor is key to reducing costs, streamlining operations and improving customer satisfaction.

Integrated ERP on the shop floor brings many opportunities for improvement. Improved quality, decreased scrap and increased production throughput are positively impacted by deployment of an ERP system on the shop floor. This paper looks at the primary drivers for full integration of ERP to the shop floor, and provides the examples of two global manufacturers putting into place “best practices”.

A History of IT Strategy

It soon became apparent that if the manufacturing process wasn't efficient, it didn't matter how well the "top floor" functioned.

The fact is, if you are not constantly improving by driving inefficiency and waste out of the manufacturing process, you are being rapidly overtaken by your competitors that do.

It wasn't long ago that it was difficult for manufacturers to get a clear picture of shop floor activity.

Today, tying the machines on the plant floor to management on the top floor for a real-time glimpse of manufacturing status isn't just convenient, it's critical for a company seeking to remain viable in a competitive marketplace.

Primary drivers for ERP on the shop floor

There are two overwhelming reasons to deploy ERP systems to the shop floor
To apply the same lean quality improvements to data – a highly valuable "product" – as companies apply to the rest of the products manufactured. This means the highest levels of data quality, accuracy, delivery and storage. Incorrect, untimely, or unavailable data about your plant floor can be more dangerous than no data at all. Lean "manufactured" data will help expose plant floor deficiencies and anomalies of OEE, quality and traceability rapidly – even during the shift.
To enable the top floor to manage the plant floor through business controls that assures accountability. This is achieved through check sheets, accurate recipes, and management of diverse processes.

Allowing an ERP system to effectively automate a process not only results in a nearly perfect production process – it also frees an operator to focus on other, value added activities. When additional data is captured, the shop floor is integrated with the top floor for a real time snapshot of traceability, machine output.

Tony Kaczmarek, president of Kors Engineering, has seen dramatic transformations that occur when ERP ties the shop floor to the top floor. He notes that sunlight has a sanitizing effect – by exposing the plant floor, the art of how a plant floor operates becomes a controllable science with accurate measurables available in real time. In fact, Kors Engineering has found that most companies learn more about their systems in the first day bringing equipment online than they've known after decades of operation.

Areas for Improvement

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Ralco Industries is an example of a company that tied together its various machines through the Kors Engineering PleXML tool which integrates all of the various shop floor machines for access of a “single truth” that supports informed decision making through the data captured by the system.

“Our inventory accuracy at one time was only about 50 percent,” says Jim Piper, President of Ralco Industries. “We were conducting grueling physical inventories every month, and they would be off within the following week. We never knew if we had enough parts to build a set-up. Every time we did a set-up, it was different. Each of our guys had their own method. This resulted in lost time, inconsistent product quality, scrap, expedited shipments, etc. We knew we had to fix our system.”

A diligent search for an ERP provider that could meet their stringent requirements brought them to Plex Systems, provider of Plex Online.

Ralco started its implementation with the Plex Online Purchasing module, one of 350 functional modules available. “It was great,” says Piper. “We found we could now easily match receipts to our internal purchase orders, and match purchase orders to invoices. We had more control and security over purchase orders, and actually reduced the number of purchase orders. The improved efficiency saved us about \$100 per purchase order processed.”

Results for Ralco were immediate and significant:

Training costs were reduced over 50% because all modules in Plex Online were available from a consistent interface

Premium freight costs reduced by 20% in the first year, greatly reducing the need to expedite shipments

Scrap rates reduced by 60%

“We've significantly grown our business in a down economy, which says a lot,” said Piper. “We couldn't have done that without Plex Online. We wanted to differentiate ourselves from our competition, and we've done it.”

Additional benefits of Plex Online on the Shop Floor

Machine recipes – Settings for specific parts are automatically entered for tolerances, speed and other critical requirements which enable a controlled strategy for production.

Plex Online can ensure that no machine operation is underway until settings are met

Traceability from station to station allows management to tie into environmental systems, hydraulics and manage energy systems

Increased transparency in the system

The shop floor was dependent on individuals prior to the introduction of ERP and adoption of a formalized platform. Now, any shop floor person can leverage the ERP system to set up and run the machine. This knowledge empowers management and helps drive informed decision making to exploit deficiencies in the system.

Opportunities for Improvements on the Shop Floor

- Quality
- Staffing
- Waste reduction
- Increased production
- Predictive maintenance

Once the shop floor machines are online it's easy to focus resources, eliminate waste and work more efficiently. Today, there is no reason, regardless where you are, to be unaware of what is transpiring on the plant floor.

Global implications for the Single Source of Truth

The world is getting flatter and your enterprise isn't only across the street or in the neighboring state – it may be on the other side of the globe. Adoption of Plex Online allows companies to review all manufacturing entities through the same lens, allowing the easy distillation of data using common data points.

Headquartered in the US, an automotive and industrial equipment producer is a growing manufacturer with properties in China, Germany and Mexico as well as the United States – and continues to be receptive to acquisitions when it makes sense for their business model.

The company quickly deploys Plex Online to new acquisitions so they can easily compare results in different manufacturing facilities and strategically determine product design and order fulfillment. The enterprise extends the Plex Online tool into subcontractors as well. Because it's an integrated system, subcontractors can directly ship product to OEMs on behalf of the producer. Using the Plex Online EDI module, subcontractors can send an advanced shipping notice (ASN), send electronic notifications, create a PO, and initiate shipping the product and the customers receives the ASN before the truck with products arrives.

It's an automated process that is simplified and helps integrate all processes – from the shop floor to the top floor – to make certain all facilities, regardless of location, are working together to maximize the efficiency of the manufacturing process and synchronize its processes.

There is a community of Plex Online users eager to share data points about why their choice of Plex Online has paid off and helped drive maintain a competitive edge and allowed them to thrive in a competitive environment; something virtually impossible without ERP.

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About Plex Online

Plex Systems, Inc. is the developer of Plex Online, a software as a service (SaaS) solution for manufacturers. Plex Online includes over 350 functional modules to manage operations from the shop floor to the top floor, including manufacturing execution system (MES) modules such as quality management and machine integration, enterprise resource planning (ERP) modules such as accounting and finance, customer relationship management (CRM) modules such as order entry and tracking, and supply chain management (SCM) modules such as supplier quality and traceability. Plex Online's SaaS model delivers reduced cost of operations, faster implementations and a continuously improving feature set.

About Plex Systems

Since 1995, Plex Systems, Inc. (Auburn Hills, Mich.) has maintained a singular vision -- to drive significant cost, quality and productivity improvements for manufacturers, from the shop floor to the top floor. Today, Plex Online also enables manufacturers to manage accounting, financials, regulatory compliance, human resources and other critical priorities, based on real-time, highly accurate data from their manufacturing operations. Plex Systems serves a global cross section of manufacturing industries (OEM and suppliers), particularly automotive, medical device and aerospace and defense companies. In 2006, Apax Partners made a strategic investment in Plex Systems, joining the founding investment group as stakeholders in Plex. For more information, visit www.plex.com.

