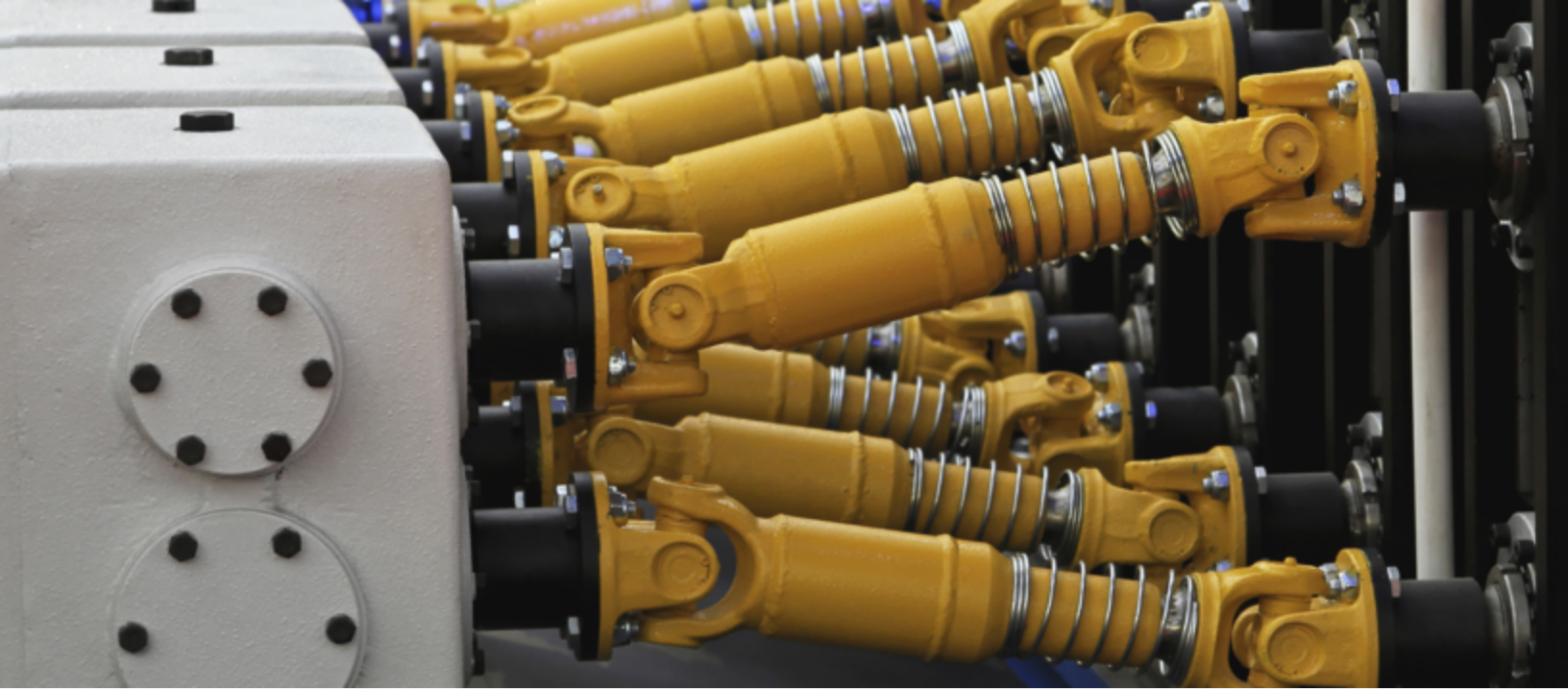

INDUSTRIAL MACHINERY AND EQUIPMENT

Top 5 issues in IM&E today

The issues industrial machinery and equipment (IM&E) manufacturers face today might feel like the same challenges the industry has been dealing with for years, but the context in which these challenges exist have changed dramatically. Greater customer demand for configure-to-order (CTO) and engineer-to-order (ETO) products are just some of the contributing factors toward making manufacturing operations more complicated, while also adding complexity to an already over-extended supply chain. Additionally, the push for greater differentiation through project management and collaborative design; increasing emphasis on service opportunities; and innovative new business models, such as bill-by-consumption, are further shifting market dynamics to the point where IM&E manufacturers need to reevaluate how they do business.

1. Shifting buyer behavior

Some of the most-noticeable changes the IM&E industry has undergone in the last few years are in **buyer behavior**. Customers are no longer necessarily purchasing expensive, stock products and waiting lengthy periods of time for delivery. Many customers are now looking for more CTO or ETO products that better meet their unique needs. This customization can include embedded sensors and software to collect data for both service and R&D. Increased customization has an impact on the way manufacturers plans for demand, manage resources, and utilize technology. Some customers aren't even purchasing products anymore—at least not in the traditional sense—they're instead utilizing new business models, such as subscriptions, rentals, and consumption-based billing.

In response to these challenges, manufacturers need to change the way they design, build, and deliver products, as well as alter their R&D, supply chain, and sales processes too.

This starts with the ability to create timely and accurate custom quotes, while ensuring profitability. A quote-to-order process that relies on a configure, price, quote (CPQ) system that's directly integrated with a manufacturer's other business systems—such as sales, engineering, planning, finance, and manufacturing—empowers a manufacturer to provide unique outcomes for its customers and supports improved operations. This gives manufacturers increased visibility into order details earlier, helps to drive faster material planning, and reduces the number of orders that require engineering-based callbacks. As a result, manufacturers can see increased sales revenue by being able to take more orders and reduce operational costs due to less waste and by eliminating BOM errors.

Meanwhile, **Internet of Things (IoT)** data pulled from customers' products in the field can help drive business innovation on multiple fronts. Analytics applied to this data can help support condition-based monitoring and optimize maintenance programs in support of service offerings. Analysis of this data can also be provided to R&D to help improve product updates and design. And for those manufacturers that offer alternative business models, such as subscription and pay-by-consumption, IoT data provides the foundation for how to bill the customer.

2. Operational complexity

Focusing on a larger proportion of CTO and ETO products, dealing with the resulting increased complexity to the supply chain, collecting and analyzing lots of data, and supporting new business models significantly increases the complexity of a manufacturer's end-to-end operations. Keeping track of a greater number of product configurations is just the beginning. To support such complex operations, manufacturers must improve the reliability and interconnections between *all* of its key departments and processes.

Historically, IM&E manufacturers have had difficulty matching inventory and demand, while also struggling with delivering orders to customers efficiently and on time. This comes from a lack of internal visibility and a reliance on manual data entry and processes. Bringing R&D, sales, manufacturing, supply chain, billing, service, and more into the equation adds an additional layer of complexity that outdated process and systems simply can't handle.

Today's IM&E manufacturers need an end-to-end solution that's designed specifically for the IM&E industry. A solution that can manage everything from planning and scheduling to supply chain and warehouse processes to manufacturing execution and shop floor control provides the deep infrastructure that keeps everyone and everything connected. With complete enterprise-wide, global visibility, manufacturers can speed up ordering, conduct faster material planning, better meet demand, optimize operations, report accurately for decision-making, and so much more. IM&E manufacturers need to transform their operations by connecting machines, software, and people.

3. Complex supply chains

One of the most complex aspects of IM&E manufacturing is managing the supply chain. Not only do CTO and ETO manufacturing further complicate sourcing raw materials, but the industry's increasing reliance on conducting production across multiple co-manufacturers makes it that much more difficult making sure the right materials are in the right place at the right time.

Additionally, the increased servitization of the IM&E industry means that there's greater pressure on manufacturers to ensure they have the necessary maintenance, repair, and overhaul (MRO) inventory on hand to meet demand. This is difficult enough when you're trying to gain visibility and control of materials internally; it becomes much more difficult when so much of the supply chain data exists outside of a manufacturer's four walls.

For a manufacturer to make accurate projections, achieve favorable prices, and meet customer delivery demands, the manufacturer must have the ability to **maintain supply chain visibility**, better manage raw materials, and communicate effectively and efficiently with suppliers. This level of visibility and communication can be achieved with the right collaboration tools to create a functionally integrated supply chain ecosystem.

The result will be the ability to onboard new suppliers faster, share documentation and information more efficiently, and better synchronize the supply chain to reduce risk and improve profitability. Relationships with suppliers will be improved, leading to better prices and an increased ability to service customers on-time.

4. Project management

Collaboration is not the exclusive domain of manufacturers and their supply chain partners. In fact, for **project-based manufacturers**, collaborating directly with customers is essential. And for many IM&E manufacturers, offering collaborative design capabilities with customers is a major competitive differentiator.

To deliver profitable projects or collaborative designs that are on-time and on-budget, manufacturers need an efficient design process, streamlined workflows, and accessible data and documents. A product lifecycle management (PLM) solution that offers standardized processes, a consistent system of record, allows users to alter projects on the fly, and provides real-time access to design and project data—for both employees and customers—is critical. A robust PLM system can give manufacturers deep insight into project costs, help perform complex resource planning, and allows manufacturers to provide accurate delivery updates to customers.

This level of collaboration essentially makes a manufacturer's customer their business partner, and it requires effective data sharing and communication. Without it, manufacturers can face frequent change orders, poor demand planning, and an increased likelihood of inaccurate job costing and estimating—which can lead to unprofitable projects and lost customers.

5. Servitization

One way to help IM&E manufacturers keep customers is by providing a needed service. In fact, service is becoming an increasingly important component of the bottom line for IM&E manufacturers. In an era when it's difficult to compete on price, **differentiating on service offerings** is another way manufacturers can gain a competitive advantage. This represents a major business model transformation for many companies—one that requires new insight into machinery data and different organizational and employee competencies. Poor service of customer assets leads to increased costs, inadequate employee utilization, and fewer renewals. To successfully deliver innovative services, manufacturers must be able to fully support these services in their back-office systems.

A solution designed for providing aftermarket service for the IM&E industry should include functionality that draws data and usage from deployed products. This can help manufacturers promote predictive maintenance contracts. Additionally, mobile field service functionality and alerts can vastly improve the effectiveness of field service technicians and help increase first-time resolutions by ensuring technicians are at the right place at the right time with the right materials and instructions.

Modern technology

These trends represent a lot of significant changes to the IM&E industry in a short period of time. Many manufacturers simply don't have the business systems, automations, workflows, and processes in place to support these new ways of doing business. Business systems that were implemented years (and often decades) ago can no longer support today's complex demands.

Whether it's CTO or ETO, IoT, extended supply chains, or servitization, these demands all rely on utilizing modern technology. It's this digital transformation of the way IM&E manufacturing operates that can help promote increased efficiency and effectiveness of existing processes. It also opens the door to differentiation—allowing manufacturers to rethink approaches and create new data-driven ways to deliver and elevate products, services, and the customer experience.

From cloud computing and collaborative technologies to mobility and analytics, technology helps solve specific needs and acts as a foundation for future growth.

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