

## A N A L Y S T   C O N N E C T I O N



**Joe Barkai**

*Practice Director, Product Lifecycle Strategies*

### **Reinventing the Industrial Manufacturing Supply Chain — From the Outside In**

*December 2010*

*Manufacturers of complex products find it increasingly challenging to make effective product-related decisions. Expanded technical complexities crossing engineering disciplines, in addition to extensive and dynamic supply chains, are among the factors that have contributed to creating an environment that challenges the traditional ways and tools by which industrial manufacturers have made critical product-related decisions and commitments. As globalization continues to affect industrial manufacturers, changes must be made to supply chain operations.*

The following questions were posed by Oracle to Joe Barkai, practice director for IDC Manufacturing Insights' Product Lifecycle Strategies research service, on behalf of Oracle's industrial manufacturing customers.

**Q. What are the key trends driving transformational change in the industrial manufacturing industry?**

A. Although the global industrial manufacturing market is about \$2 trillion, the overall forecast growth rate for 2010–2011 is a conservative 4%. While the demand for heavy equipment and industrial equipment, especially in emerging economies, will be relatively strong, the following are some important factors that will impact overall performance and growth:

- Rising cost of raw materials, commodities, fuel, energy, and transportation
- Increasing commoditization and stiffening competition from low-cost manufacturers from emerging markets, specifically BRIC nations
- Intensifying pressures on operating income
- Unprecedented volatility in market demands, supply and disruptive technologies driven by new market entrants, and competitive and economic forces

In this tough environment, manufacturing companies struggle to grow revenues and protect profit margins. Product companies must find ways to balance time to market, cost, quality, and customer demand. Furthermore, manufacturers should maintain high levels of flexibility and agility to respond to unexpected changes in market conditions and be prepared to bring new products and services to market faster.

**Q. Are there some examples that illustrate the impact of these challenges?**

A. Indeed, these challenges take a significant toll on product-oriented companies. Product development programs are often late to market and over budget, about 20% of projects are over time, and 35% of product companies have experienced at least one runaway project.

Despite best intentions, most products fail to meet market expectations — for instance, only one out of every four product development programs yields a product that reaches the market, and two-thirds of those products do not meet expectations. Consequently, research shows that 46% of the resources allocated to product development and commercialization are spent on products that fail to yield an adequate financial return or are cancelled before they reach the market.

Examples are not limited to product development and introduction. One notable supply chain issue is inventory management. In the durable goods and industrial components sectors, the decline in public, home, and industrial construction projects thwarts demand, leaving manufacturers with bloated inventories and excess manufacturing capacity. On the other hand, heavy equipment manufacturers that have leaned their processes aggressively to the point of being too brittle have lost revenue due to their inability to meet increasing demand in certain sectors.

**Q. What can industrial manufacturers do to surmount these challenges and improve their competitive position?**

A. We can view this question from three different angles: innovation, profitable growth, and productivity. Industrial manufacturers should excel in all three areas.

On the innovation front, manufacturers need to seek ways to accelerate both product innovation and time to market. Manufacturers must facilitate aggressive and persistent collaboration with customers, suppliers, and partners globally. A key capability they need to foster is product portfolio analysis and optimization.

To drive growth, manufacturers must optimize supply chain performance. This means they need to implement systems that optimize demand-driven forecasting capabilities and manufacturing and inventory planning as well as enable efficient order capture and fulfillment. Specifically, manufacturers need to:

- Leverage real-time visibility into supplier capacity to improve service levels, inventory turns, and sourcing decisions
- Improve analytic capabilities to optimize supply chain operation, optimize inventory levels, and be able to respond rapidly to unexpected supply chain disruptions with event-driven rapid planning
- Enable product configurators and guided selling tools, including accurate and efficient quoting of engineer-to-order products, to reduce errors and to improve delivery accuracy and customer satisfaction
- Integrate quoting, configuration, order capture, and fulfillment processes across multiple channels to provide higher-quality customer experience

To drive manufacturing excellence, facilities must improve visibility into work in process, cycle times, productivity, and equipment utilization across the shop floor and through the extended supply chain. Manufacturing intelligence tools — a combination of plant floor connectivity, aggregation and analytic tools, and role-based dashboards — improve production efficiency

in a number of ways. Such tools support faster detection and correction of manufacturing bottlenecks and quality problems. Simultaneously, they help identify best practices that could be shared across other lines and plants. In certain instances, these tools provide additional opportunities for better allocation of manufacturing resources and multiplant load balancing.

**Q. What are some of the supply chain challenges created by the global economy?**

- A. As we all know, the growth for most product companies is in emerging global markets, so manufacturers should develop a clear understanding of regional geographic needs and how to respond to these local differences.

At the same time, many of the supply chain issues discussed earlier are exacerbated by volatility in the global economy. Fluctuating raw materials costs and unit costs force companies to consider lower-cost and multiple sourcing, which further complicates the supply chain.

Manufacturing companies should implement advanced analytics and planning tools to improve logistics and transportation management. Specifically, they need to manage and optimize their supply chains — both sourcing and fulfilling — for profitable proximity, weighing low-cost sourcing against logistics cost and risk and devising advantageous postponement strategies.

**Q. Since the success of manufacturers of industrial equipment is so dependent upon market conditions, are there other strategies they can use to mitigate these risks?**

- A. Construction equipment, industrial machinery, and agriculture equipment businesses are cyclical in nature, and therefore they are highly susceptible to macroeconomic and domestic trends. To this end, these manufacturers should seek ways to attenuate the down cycles by identifying additional revenue opportunities.

Equipment service, spare parts, and equipment maintenance are highly profitable and are particularly important during periods of slower sales, as in the current economy. A large manufacturer of industrial equipment, for instance, saw a significant decline in new product sales, yet, at the same time, it experienced an increase in sales of parts and repairs, resulting from the need of customers to maximize the life expectancy and utilization of older machinery. This manufacturer's business strategy is to generate 30–40% of overall revenues from services on an ongoing basis. What's important is that these companies do not simply stumble upon these opportunities. They saw this as a transformational opportunity and adopted a systemic view of product manufacturers as service platforms. They embed the services strategy in their offerings, in supply chain planning, and even in the actual design. To respond in a like manner, companies should establish a deep understanding of their customers through the use of customer relationship management (CRM) software and CRM analytics tools, establish frameworks to deliver a portfolio of value-add services, and strive for customer service excellence.

**ABOUT THIS ANALYST**

*Joe Barkai is practice director for IDC Manufacturing Insights' Product Lifecycle Strategies research service. In this role, he examines discrete manufacturing industries that include automotive, aerospace, industrial equipment, and other complex, mission-critical capital equipment to identify business imperatives, best practices, and emerging technologies. His research topics center on effective product lifecycle management and include innovation, design and engineering, service and warranty, and product end of life.*

---

A B O U T T H I S P U B L I C A T I O N

This publication was produced by IDC Manufacturing Insights Go-to-Market Services. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC Manufacturing Insights, unless specific vendor sponsorship is noted. IDC Manufacturing Insights Go-to-Market Services makes IDC Manufacturing Insights content available in a wide range of formats for distribution by various companies. A license to distribute IDC Manufacturing Insights content does not imply endorsement of or opinion about the licensee.

C O P Y R I G H T A N D R E S T R I C T I O N S

Any IDC Manufacturing Insights information or reference to IDC Manufacturing Insights that is to be used in advertising, press releases, or promotional materials requires prior written approval from IDC Manufacturing Insights. For permission requests, contact the GMS information line at 508-988-7610 or [gms@idc.com](mailto:gms@idc.com).

Translation and/or localization of this document requires an additional license from IDC Manufacturing Insights.

For more information on IDC, visit [www.idc.com](http://www.idc.com). For more information on GMS, visit [www.idc.com/gms](http://www.idc.com/gms).

Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 [www.idc-mi.com](http://www.idc-mi.com)