ANALYST CONNECTION

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High Technology and the Global Supply Chain: Taking Capabilities to the Next Level

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For high-tech companies, business success is primarily defined by innovation. Major key performance indicators include time to market, quality, and differentiating features. Companies are focused on how they can differentiate their products in a very crowded market, where low cost, high quality, and competition are prevalent. Different high-tech companies have different goals. For high-end consumer products, it's all about getting to the next Christmas market. In other product areas, it's about making it to the next big trade show or industry event. There are also high-tech manufacturers that just need to ensure that they get to market ahead of the competition for competitive products with similar features. High-tech companies can improve their supply chain by focusing on strategic capabilities such as demand planning and improving key performance indicators.

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 high-tech customers.

Q. What are some of the key challenges facing high-tech companies?

A. High-tech product and services companies strive to compete in an increasingly complex environment with rapidly evolving technologies, elongated and often fragmented supply chains, and continually changing stringent regulations. To stay competitive, companies need to offer differentiating products and services to discerning customers who are well-informed and have myriad options from low-cost, high-quality competitors.

IDC's market research reaffirms these observations. In market studies, high-tech companies identified three key challenges for profitable growth: competitive prices for products and services, innovation for technical superiority, and managing quality and runaway warranty costs.

IDC also sees companies struggle with demand forecasting and collaborative planning. Volatility in the marketplace wreaks havoc on supply chain planning and execution.

Therefore, companies must continually innovate and reinvent. In the past, technology superiority and high-quality products served companies well and formed sufficient barriers against competitors. These characteristics are no longer sufficient. Companies that do not innovate, and do so persistently and efficiently, will stay behind.

Q. Can you talk about innovation management?

A. It is clear that companies need to innovate in all technology and business process areas. Innovation must be aligned with a company's strategy, creating differentiating products, features, and services.

Many believe that innovation is more an art than a manageable process and that innovation cannot and, in fact, should not be managed. There is certainly merit in supporting the "bleeding edge" and the need to allow free-form innovation, but this needs to be aligned with a long-term strategy. Many companies can be described as reckless innovators. In such companies, the success rate of new products is really low — less than 20% of new products meet expectations.

Companies need to manage and prioritize their innovation efforts to ensure their profitability. How do companies decide which innovation efforts are too risky and likely to fail and which should move forward? How do they divide scarce budgets and resources among different opportunities? How do they decide on the time frame?

Product companies need to focus on increasing the efficiency of innovation activities to increase the success rate of new products while striking a balance between "bleeding edge" innovation, reuse of existing IP, and outsourcing.

Lean innovation can help with prioritization by revealing the impact of a company's decisions on the product portfolio. A company has to understand the resources required if an innovation is successful as well as the impact of a successful product on other products in the portfolio in terms of cannibalization of resources or revenue. A balanced portfolio is created through optimized decisions rather than by simply pushing an innovation through the door.

Successful companies employ a formal process that addresses the different facets of innovation: resource availability, portfolio performance, supply chain information, and other factors. Successful companies have implemented a closed loop process that allows visibility into all aspects of product development, including outside the four walls of the enterprise.

These manufacturers rely on product data management (PDM) software to manage all product design data and attributes, supply chain information, quality reports, and so forth. These companies not only maintain an up-to-date and complete "single version of the truth" but also are able to bring together and synthesize multiple perspectives for enhanced analytics and better decision making.

Analytics and decision making can certainly challenge manufacturers and their IT departments because manufacturers need to deal with a myriad of information sources for multidisciplinary decisions. Manufacturers also need to enable visibility across the supply chain where partners and suppliers use a range of IT systems. Therefore, it is crucial that manufacturers support an open IT architecture and implement a PDM process that can accommodate different data sources and taxonomies and synthesize and maintain a single version of the truth. Doing so can support effective innovation across this fragmented landscape.

Q. What are the benefits of supply chain visibility and holistic planning for high-tech companies?

A. One of the most difficult elements of a supply chain is dealing with demand volatility. High-tech companies need to have visibility into changes in demand and the ability to make sure they can meet the demand. Manufacturers cannot afford managing large and expensive inventories as a way to overcome fluctuation in demand.

Therefore, manufacturers invest in technologies to aid in demand planning and forecasting. Yet, by definition, a forecast is going to be wrong more often than it's going to be right. So, additionally, companies need better information and enhanced analytics to help understand customer needs and expectations as well as market conditions and then use that information to improve the accuracy of forecasting.

In parallel, there needs to be very clear visibility into demand as well as the capability to meet the demand with minimal inventories. Companies should adopt technologies to identify demand signals coming from the far end of the supply chain, different channels, geographies, and so forth. A sophisticated postponement strategy will allow optimization of inventories distributed throughout the supply chain.

Q. Outsourced manufacturing has been practiced by the high-tech industry for many years. Is there still room for improvement? What are some of the remaining or new challenges?

A. High-tech manufacturers have been successful in reaching high levels of efficiency and agility in outsourcing manufacturing to contract manufacturers. Over the years, the relationships between brand owners and contract manufacturers have broadened to include design and repair service.

However, this improved efficiency has impacted some important areas in a way that is often too subtle for brand owners to immediately recognize. First, there is the problem of knowledge deficit. The more responsibility for design, manufacturing, and repair is outsourced, the less intimate knowledge the product company has about the subtle aspects of its product. This knowledge deficit may not be apparent in a day-to-day operation, but it is vital to understanding the customer, addressing quality issues, and engaging in an effective continuous product improvement process.

Second, the elongated and fragmented supply and manufacturing chain obscures visibility into downstream activities such as manufacturing, retail or distribution operations, and service that can hamper the ability of the brand owners to act diligently.

Therefore, companies should invest in effective PDM systems and collaboration platforms to ensure that all product-related data is captured and used to improve visibility and decision-making fidelity. That means collecting and exploiting data from all phases of the product lifecycle — from design to retirement — and to do so independent of the source of this information, whether from the brand owners, a contract manufacturing partner, or a distribution or retail channel.

It is critical that this information be complete, error free, and sufficiently real time so that brand owners are aware of issues as soon as they occur — again, independent of where the issues have originated — and have the information and context to make the right decision.

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.

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