

High Expectations for High-Tech Value Chains

Specialized Teamwork Delivers Superior High-Tech Products

High tech is everywhere. Technology is now embedded into products in every industry, and some manufacturers — automotive, aerospace, industrial machinery, defense, appliances — can no longer go to market without products that include advanced software and electronics. Even items as mundane as tires, doorbells, fitness equipment, and shoes now have embedded high tech. This three-part series — *High Expectations for High-Tech Value Chains* — explores how the spread of high tech is changing the competitive landscape:



- *Part 1:* Strategic advice for manufacturing executives who suddenly need high-tech expertise.
- *Part 2:* A quick guide to regional sourcing to speed supplier fulfillment and ensure rapid delivery of high-tech products.
- *Part 3:* Dos and don'ts when looking for full-service contract manufacturers that specialize in bringing high-tech to any industry.

Part 1: Finding the High-Tech Expertise You Need

Developing complex products with embedded electronics requires specialized expertise — and is rarely found in a single company. The era of the vertically integrated Model T plant, in which all production happened under a single roof, is long gone. Which means that very few manufacturers can manage *all* facets of manufacturing if they want high tech in their products. Fortunately, they have options.

High-tech companies have evolved from sellers of electronic *components* to developers of *modules* and *systems* that offer solutions for manufacturers in need of digital functionality. This is critical because there isn't enough high-tech capability (e.g., intellectual property) and capacity (e.g., equipment, processes) at most lower-tech manufacturers to embed electronics into their products.



Manufacturers migrating from old-school vendor management to high-tech supply chains must leverage new best practices and technologies to find partners and ensure they perform as expected.

This gap forces companies to source their high-tech components, modules, and systems, creating other challenges:



- *Procurement management issues:* The pool of potential suppliers is suddenly much larger — and scarily unknown. Supplier criteria developed for nuts or bolts suppliers won't work with high-tech hardware and software vendors.
- *Inventory management issues:* High-tech products offer enormous potential profits. But reaching for those profits will dramatically increase supply-chain risks as high-tech functionality is sourced, accumulated, and potentially becomes obsolete before finished-product sale. How will you guarantee on-time deliveries without over-investing in inventory or putting customer deliveries in jeopardy?
- *Synchronized logistics and production/assembly issues:* Managing the volatility of high-tech demand and supply can overwhelm logistics and production schedules at non-high-tech manufacturers and impact key metrics that define the core product (quality, safety, costs, delivery). Rapid development of products with high-tech functionality will require greater visibility throughout the supply chain and faster, more agile logistics and production processes.

New Ways for New High-Tech Challenges

Manufacturers migrating from old-school vendor management to high-tech supply chains must leverage new best practices and technologies to find partners and ensure they perform as expected:

- *Pick the right supply-chain partners:* Digitally enabled products require higher standards for supplier quality and performance. New information technologies, such as business analytics, can collect and assess data on supplier performances, corporate stability, and existing business relationships. Manufacturers must also audit and monitor suppliers' internal processes to ensure compliance, and look for a willingness to collaborate on new products and markets.



- *Monitor supply-chain production and compliance:* It's critical for executives to have visibility into supplier production sites — inventory levels (work in process and in transit), quality specs, and safety and environmental practices. Fortunately, supply-chain management (SCM) applications can bring even distant vendors to a manager's desktop. In the same way these executives walk the floors of their own facilities, they must “digitally walk” through their suppliers' facilities to uncover issues that could damage delivery, costs, quality, or their brand.
- *Track and coordinate parts and components:* High-tech functionality also complicates the process of making those products. Cloud-based global positioning systems (GPS) and radio frequency identification (RFID) technologies can help manufacturers track products en route from suppliers, allowing them to better coordinate production schedules. These technologies also cut costs via improved inbound and outbound transportation routing and can monitor products for quality conditions (e.g., temperature, light, vibration). Savvy manufacturers also will leverage the same technologies to track downstream logistics as goods move toward customers.

High tech offers unprecedented opportunities for manufacturers to dramatically differentiate their products and gain competitive advantage. What electronics do *your* customers want in *your* products? And which capabilities will *you* need to produce those goods?

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