ASK THE EXPERT

Electronics and High-Tech Companies are Vulnerable to Supply Chain Disruptions, but They Can Build Resiliency

FLORIAN HARZENETTER
Senior Director, Global Advisor Industrials, PTC

Electronics and High-Tech companies are navigating a landscape defined by relentless competition, rapid technological change, and increasing customer demands as the rise of "smart" technologies are adopted across industries. Balancing these challenges with a complex supply chain is daunting, and disruptions can leave E&HT companies missing critical release windows.

Fortunately, there are ways to build supply chain resiliency by focusing on a product data center approach. **Florian Harzenetter**, Global Advisor for Industrials and E&HT at PTC, explains how organizations can untangle supply chain challenges while still focusing on innovation to stand out in a competitive marketplace.

What are the challenges unique to E&HT manufacturers?

E&HT manufacturers are at an interesting juncture. More electronic components are going into everyday products like vehicles, cellphones, and smart appliances, and the push to decarbonization and electrification needs associated electronic components. While the demand for electronics might be increasing, E&HT manufacturers face fierce competition, requiring constant innovation and high product quality to retain customers.

Inflation and rising component and labor costs significantly impact E&HT manufacturers, who need to manage these expenses while maintaining product quality. According to IPC, the global association for electronics manufacturers, 86% of electronics manufacturers are concerned about inflation, and nine out of 10 are experiencing rising material costs. In addition, increasing regulations add layers of complexity to production and innovation.

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Why are supply chain challenges particularly painful for E&HT manufacturers?

E&HT products often require a large number of specialized components from a global network of vendors. As a result, they are particularly vulnerable to supply chain disruptions like geopolitical issues, tariffs, natural disasters, and other external factors. It's difficult for manufacturers to know for sure if they can get the component in the quantities they need at the right time.

How have E&HT manufacturers traditionally handled these problems, and why are those approaches not working today?

It's worrisome that only slightly more than half (53%) of new product introductions generated by high-tech manufacturers achieve time, volume, and quality targets. Part of the blame lies on reactive management. Traditionally, E&HT manufacturers have addressed supply chain problems only as they arise rather than proactively planning for them. Procurement starts shopping for components only after the design process, at which point prices and shortages come as a surprise.

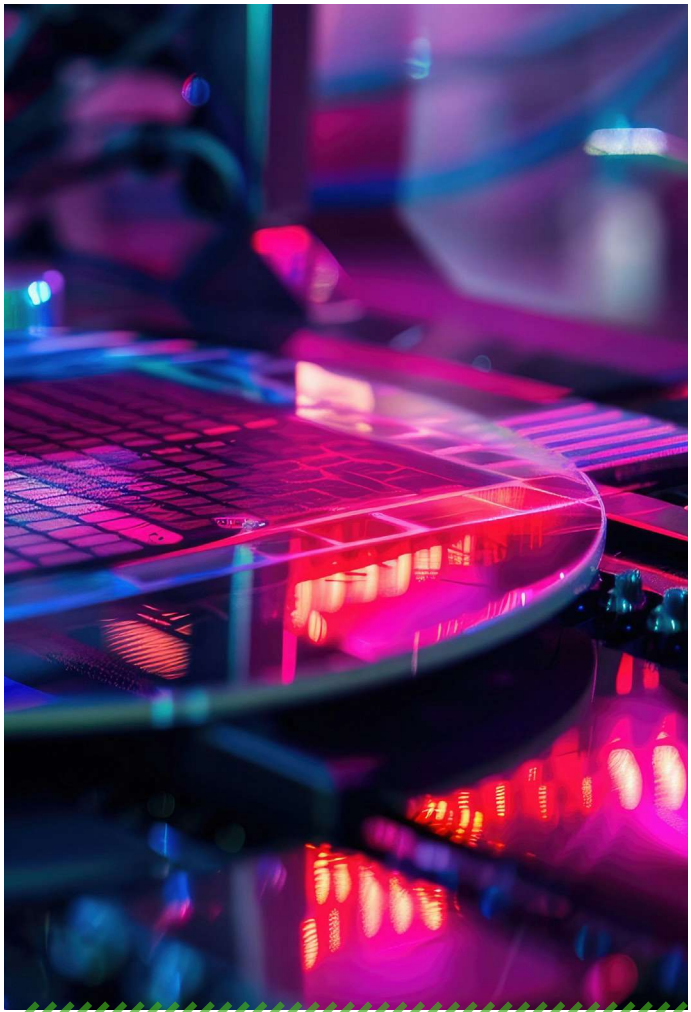
Many manufacturers lack alternative designs with alternative parts, leading to delays and increased costs when supply chain disruptions occur. In addition, fragmented systems mean product designs are often spread across multiple systems, making it difficult to quickly identify and address problems.

What solutions do you envision for E&HT manufacturers to address their supply chain challenges?

E&HT manufacturers need to implement systems that provide real-time, accurate information across the supply chain to improve decision-making throughout a product's lifecycle. Instead of being locked into supply chain challenges in the design phase, E&HT manufacturers need upfront visibility into dependencies across different disciplines and supply-chain-related information early on so they can choose the right component.

Developing and validating alternate designs with different choices of components optimized for local supply chains can ensure continuous production. And distributing manufacturing locations globally can help decouple from tariffs, while being close to customers and more reliant on localized supply chains.

E&HT manufacturers can use PLM systems to streamline information flow between engineering, manufacturing, sourcing, and supply chain partners. PLM systems allow manufacturers to streamline the engineering process and publish to multiple ERP systems to execute tasks in a global production network. Using PLM also makes it easier to track the impact of product design changes on the rest of the ecosystem.



Could you describe, through an example, how these solutions might help?

A manufacturer of electronic components had 11 factories around the world with engineering and manufacturing departments at each site. Each factory had to distribute its products globally and ran into problems getting products in the right quantities into the right markets. The company decided to use a PLM backbone, concentrating its engineers in a few sites that focused on product development, making the process much more efficient.

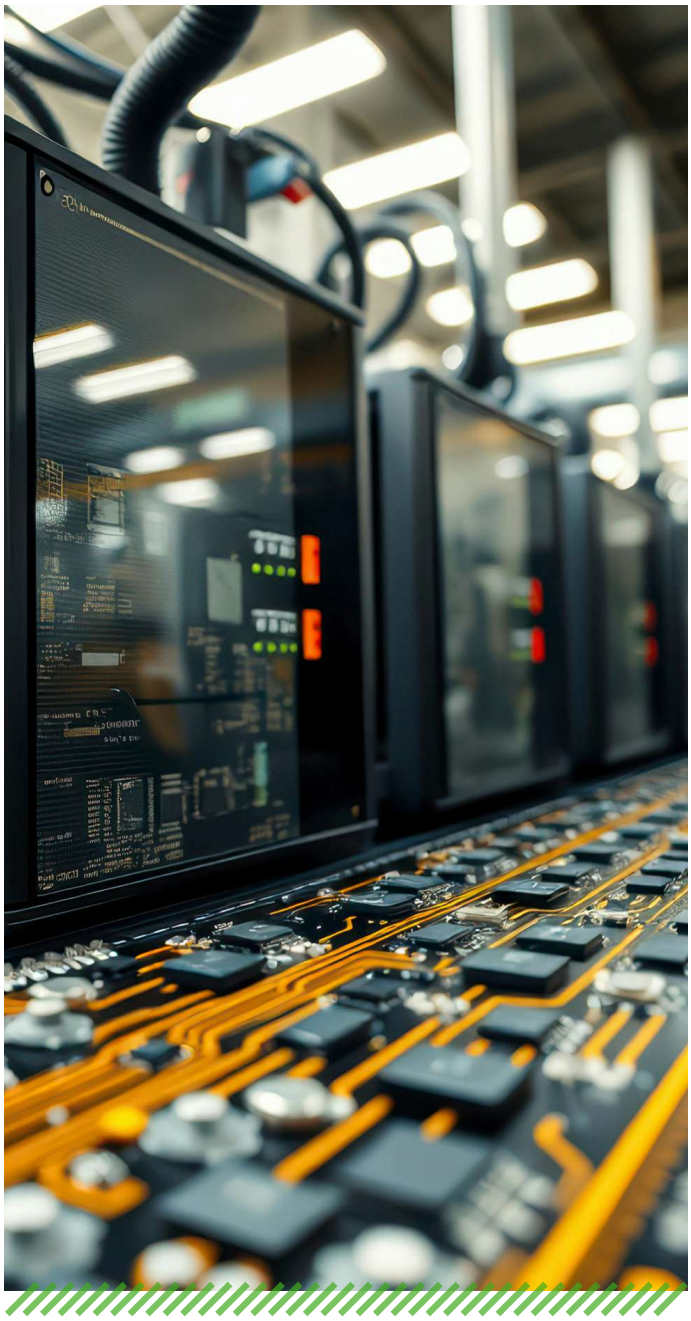
Each location focused on manufacturing only a few specialty products. They received instructions for these products through their ERP systems once the designs were finalized. The result was a production network close to demand and nimble enough to adapt to local markets.

What are the top three advantages of deploying such solutions?

The biggest gain is speed to market. E&HT manufacturers can save a lot of time otherwise wasted in trying to find information and getting people aligned on strategy.

The product development process becomes more transparent. Manufacturers can access a much broader knowledge network and, using regional production facilities, can drive cost efficiency because they're closer to market. Better management of materials and components reduces costs and minimizes disruptions.

A global level of control through the engineering backbone leads to more agile facilities that can adapt to changing product design. Consistent and reliable processes lead to higher product quality and customer satisfaction.



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