Metalworking

How Marine Manufacturers Can Navigate Supply Chain Storms

Kip Hanson | Aug 15, 2023

While yacht and boat sales have surged in recent years, deliveries haven't kept up with orders: Disrupted supply chains for items from sealing resin to chips used in GPS systems have kept many would-be mariners landlocked.

"Many materials and supplies have not been available at all for some time," says Jeroen van den Heuvel, head of the yacht building department at the Dutch boatbuilders association HISWA.

"Necessities that were available have been super expensive: Prices for wood and steel and parts for yachts went through the roof. Shipping a container from China to Europe was 12 or even 13 times the price of shipping in 2019," van den Heuvel adds in an ***article*** on the leisure marine industry website ***metstrade.com***.

While the situation has improved recently, "what remains is uncertainty," he says. "Delivery time has increased for almost all supplies," and there are "some quite unpredictable flaws in warehouses."

Staying Afloat with Software

On the subject of predictability, here's another quote, this one from the late, great business consultant Peter Drucker: "The best way to predict the future is to plan for it."

He's right, which is why it's imperative for manufacturers—marine and otherwise—to invest in tools that help curb supply chain uncertainty. Chief among them are software systems that provide:

1. Real-time visibility and tracking of inventory levels, usage rates, reorder points and other consumption-related data.
2. Forecasting and planning tools that deliver accurate production schedules and help predict when there will be higher demand based on historical data.
3. Cost-management data, and the ability to monitor the cost of raw materials, replacement parts, finished goods and similarly critical components.

Whether your company manufactures cabin cruisers, catamarans, cargo ships or canoes, the good news is that you almost certainly have access to these capabilities.

They come from enterprise resource planning (ERP) software, and as long as it was implemented properly and everyone in the company remains a good steward of its planning processes and the information it contains, ERP is one of the best tools in the toolbox to minimize supply chain uncertainty.

For warehouses where product velocity is high and optimal picking/packing/shipping strategies are a must, there are warehouse management systems (WMS), which integrate with the company's ERP software (and possibly its suppliers' systems as well), helping businesses reduce manual tasks, improve accuracy and streamline operations.

Forecasting modules are often available with these systems, and investing in and learning to use them is another smart strategy. Many now leverage artificial intelligence (AI) and machine learning (ML), giving them the clairvoyance to predict market demand and identify disruptors.

Investing in Cutting-Edge Supply Chain Tech

Is having such tools enough, though?

While a robust ERP system is certainly an integral part of any manufacturing endeavor, nautical or otherwise, many of today's supply chain woes lie beyond the realm of even the most sophisticated business management software.

That's why manufacturers need advanced technologies that go significantly further.

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For instance, the Industrial Internet of Things (IIoT) makes it possible to monitor supply chain performance in real time.

Smart shelves equipped with weight or presence detectors notify clerks when restocking is needed. Sensors on manufacturing and warehouse equipment detect when machinery is about to break down or needs maintenance.

Radio-frequency identification (RFID) tags can display the location and status of products throughout a facility, while GPS and other tracking solutions monitor the location and status of trucks, ships or planes, ensuring efficient route planning and quick responses to unexpected delays.

Similarly, digital twin technology offered by companies such as ***Siemens*** or ***Dassault Systèmes*** lets manufacturers create a virtual replica of the physical supply chain. They can then use the twin to simulate disruptions, helping them to understand the potential impact and formulate effective response strategies.

Logistics managers can also leverage the digital twin to visualize supply chain inputs and outputs. Marine warehouse personnel can use it to optimize their available storage space, identify bottlenecks and inefficiencies, and prepare for demand increases.

In the most advanced implementations, users can feed industrial internet data into the digital twin, increasing its accuracy and providing more realistic planning scenarios. Though still young, the twin is a very powerful and largely underutilized tool.

Building Strong Supplier Relationships

Of course, effective supply chain management requires much more than smart technology and software utilization—it also requires strong relationships with every link in the chain.

This is one area where the adage about putting "too many eggs in one basket" holds especially true. Relying on a single or a few suppliers can be risky. Manufacturers should diversify their supplier base, both geographically and across different firms to protect against regional disruptions or supplier-specific issues.

Selecting the correct vendors shouldn't be about price, either. Yes, competitive pricing is essential, but not as much as flexibility and stability are.

Look for suppliers able to react quickly, who embrace the latest technology.

Generally speaking, a machined part vendor who has invested in modern CNC equipment like multitasking lathes or flexible machining systems (FMS) should be well-equipped to react to emergency requests.

Leisure boat producers depending on no-fail delivery of electronics like the GPS systems mentioned at the outset would do well to partner with suppliers that use robotic pick-and-place equipment and automated soldering and inspection machines.

After ensuring that an established, diverse supplier base is in place, manufacturing managers should make certain that relationships with them are sound. Regularly assess partner companies. Look for supply chain vulnerabilities. Use tools and analytics to score and prioritize risks based on their impact and likelihood.

Perhaps most importantly, customer-vendor relationships should be collaborative. Building strong bonds with suppliers can provide manufacturers with better insights into potential problems and lead to more favorable treatment during shortages or disruptions.

Advantages of Reshoring

On a more strategic level, manufacturers might consider reshoring, nearshoring, or vertically integrating. Granted, each of these can be a massive and expensive undertaking, one that requires careful planning and months or even years of effort.

But in the long run, reducing or even eliminating reliance on offshore suppliers is not only an effective way to mitigate supply chain risk, it also brings significant benefits to the economy and the domestic manufacturing base alike.

Which digital tools have you found most effective in overcoming supply chain snarls? Tell us in the comments below.