



Managing an Unpredictable Global Supply

Identifying and Mitigating Global Supply Chain Issues

By Mike Long, *Purchasing Manager* with Linda Ricard

As the world's economies have become more reliant on global sourcing, a beleaguered global supply chain has continued to combat a number of significant challenges over the last five years including the unforeseen turbulence of the global pandemic, an increasing number of international conflicts, and political upheavals across the globe.

Besides the world events that inject a degree of unpredictability into global trade, manufacturers are also feeling the ramifications of economic hits to their business operations, including the great resignation and talent hiring and retention in both technical and craft personnel.

Added to the challenges of the post-pandemic era and

geopolitical risks are disruptions to ocean freight flow that can reroute cargo ships, adding a week or more to transit times.¹ The good news is that transportation has mostly recovered, and capacity presently matches or exceeds current volumes.

Global Supply Chain Trends – No Consistency in Recovery

The consistency now with global trade is that there is no consistency in recovery efforts as manufacturers struggle with quality issues, parts shortages, and production delays at the same time that there is growing demand for manufactured goods across the U.S.

Some areas are rebounding as seen with fixed and rotating mechanical equipment (i.e., heat exchangers, pumps, pipe valves/fittings, and pressure vessels). These leads times have stabilized and returned to pre-Covid levels.

Three Biggest Global Supply Challenges

World Events

- COVID
- International Conflicts
- Political Upheavals

Economic Impacts

- Great resignation
- Talent hiring and retention

Reliance on Global Sourcing

- Strained to the breaking point by COVID and other world events, with impacts still being felt

On the other hand, there are longer lead times and schedule delays for PVF, electrical, and control systems equipment. Some of the reasons include parts shortages and increased quality issues revealed during testing or caught by third party inspectors.

Control systems component delays are the new normal, and lead times for electrical equipment remain much higher than historical averages. For example, a transformer that used to take 42 weeks to manufacture after an order was placed can now hit a lead time of upwards of a year and a half to two years.

Another factor impacting supply chain and subsequent production delays is the reduction in knowledgeable engineering staff across the supply chain and the hiring of less experienced staff which is impacting the timing and quality of supplier data submittals.

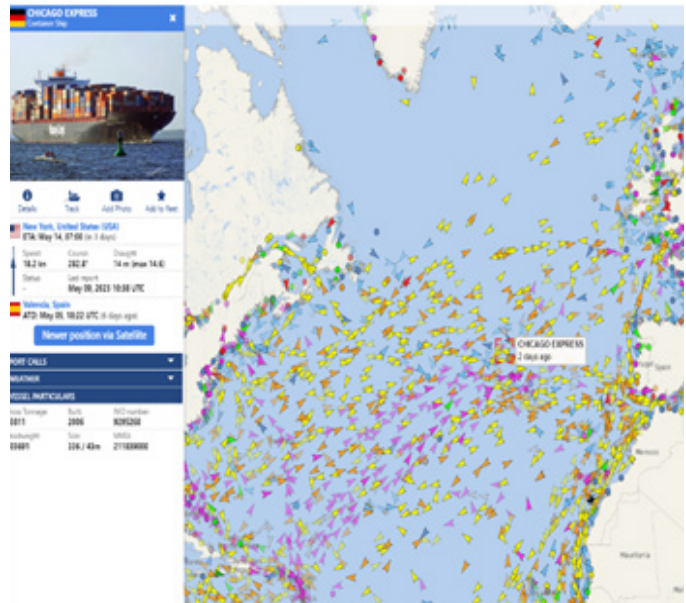
This reduction in experienced staff has caused both delay in issue of critical approval drawings and the recycle of drawing mark-ups, as suppliers fail to make corrections the first time. It is not uncommon now to go through three or more approval cycles before the drawings are accurate and released for fabrication.

Yet, as geopolitical forces, unforeseen disruptions, and economic impacts reshape the flow of freight around the world, there are still ways to mitigate global supply chain challenges to ensure the timely delivery of goods.

Mitigating Global Supply Chain Challenges

#1: Purchase Long Lead Equipment as Early as Possible

One mitigating strategy is to understand lead times for critical equipment and purchase long lead equipment early in the project. This includes accounting for approval documentation lead times and reviews and equipment lead times after drawing approval and having a contingency plan in place so that the vendor can start the manufacturing process. Purchasing long lead equipment as early as possible also involves interactive schedule reviews and



equipment criticality reviews for major projects and providing funding for long lead purchases prior to the detail design or execution phases.

#2: Increase Phone Expediting

Monitoring the progress of procured equipment requires an increase in phone expediting - in some cases doubling, tripling, or quadrupling the time it takes to reach out to individual suppliers. Proactive measures included continually checking on manufactured and shipped equipment in the following intervals:

At Least Once a Week: Technically complex equipment, critical schedule and/or supplier with a history of quality or delivery issues.



Every 1-2 Weeks: Equipment with standard complexity, some schedule float, and/or supplier with a history of meeting quality and delivery requirements.

Every 2-3 Weeks: Simple or “off-the-shelf” equipment with minimal documentation and no potential to impact project schedule. For complex, critical equipment, procurement specialists often conduct multiple calls and emails per week to resolve issues and maintain schedules, documenting every supplier contact and escalating issues to manufacturing leadership, if necessary.

#3: Hold PO Kickoff Meetings and Weekly Status Meetings

Proactive expediting often requires holding purchase order (PO) kickoff meetings to set expectations

and weekly status meetings to monitor areas of risk to schedule, quality, and cost. This is especially important for complex engineered equipment where a significant amount of coordination is necessary to monitor progress and ensure the scheduled delivery of the equipment. PO kickoff meetings and weekly status meetings engage and align key stakeholders during the design process, reduce approval drawing recycle, and track schedule milestones.

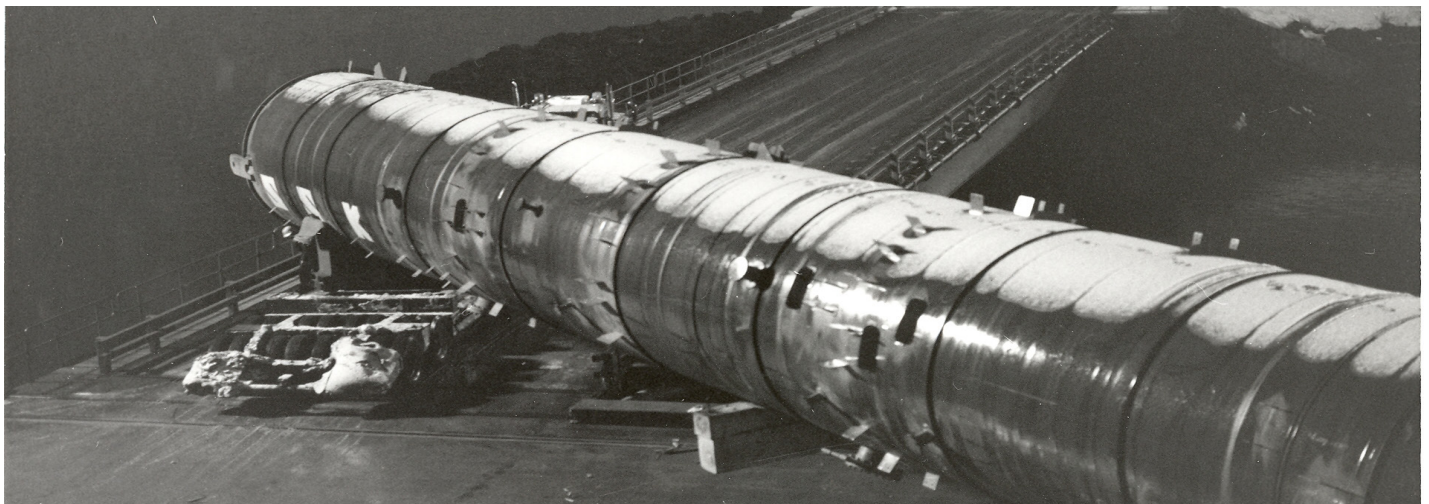
#4: Perform Third Party Inspections and Shop Expediting

Another mitigation strategy for countering potential risks in the procurement of global goods is to perform third-party inspections and shop expediting. Third-party inspections confirm fabrication status, witness testing/hold points, conduct quality checks to confirm compliance, and perform final check and shipping release. Shop expediting performs critical functions that also help to mitigate supply chain issues, such as:

- Checking detailed status of milestones and activities against fabrication schedule.
- Confirming purchased materials have been received and allocated to the purchase order.
- Identifying and mitigating production bottlenecks.
- Escalating as needed to project management, production management, or senior management.
- Reporting status to project stakeholders.

#5: Leverage Master Purchase Agreements and Liquidated Damages

Where appropriate, use the client’s master purchase agreements with suppliers. Not only do the agreed terms and conditions speed up the procurement process, but it also serves to resolve issues and improve delivery dates.



It is also helpful to leverage Liquidated Damages (LDs) to minimize schedule risk. LDs are not penalty clauses and quantify the impacts of delays to a project. To be enforceable, the purchaser must meet their commitments by not making post-award changes or providing equitable schedule relief for changes and must meet document review and inspection dates.

Typical LDs include a date that triggers performance requirements like mandatory fabrication overtime and air freight of components, one or more dates that trigger monetary damages, and a provision to address change orders.



#6: Proactively Plan Logistics

With the unpredictable challenges facing the global supply chain, side-stepping curve balls requires having a backup plan to mitigate shipping delays and identifying preferred carriers and shipping modes well in advance of shipment. Proactive measures also include understanding weights and dimensions and the difference between standard loads, permit loads, and heavy loads and using the proper Incoterm such as:

- EXW (Ex Works) – Risk/cost transfers to buyer at supplier's facility (unloaded).
- FCA (Free Carrier) – Risk/cost transfers to buyer at named place (loaded on buyer's transport).
- FOB (Free On Board) – Risk/cost transfers to buyer at named port (loaded on vessel).
- DAP (Delivered at Place) – Supplier delivers to named place, but buyer is responsible for import duties and customs clearance.
- DDP (Delivered Duty Paid) – Same as DAP, but supplier must clear for import.

Summary

Companies are developing resilient expediting and logistics strategies to improve their ability to respond to rapid market changes and to shifting geopolitical forces, unpredictable global events, economic impacts, and macro disruptions to the global freight flows and domestic supply chains that move goods from ports to industrial facilities.

A secure and transparent expediting and logistics operating model requires planning well in advance to procure long lead times early on, continually monitoring and mitigating risk to quality and schedule, and having a contingency plan in place to counter unforeseen events. These steps go a long way in providing some degree of predictability during a time of unpredictability in global trade.

REFERENCES

[New Disruptions, Geopolitics Hang Over 2024 Supply Chains - WSJ,](#) Wall Street Journal, by Paul Berger, Jan. 2, 2024