



Supply Chain

Rebuild your supply chains to ensure timely access to all inputs your business requires

Immediate actions for improving supply chain can start with supplies, suppliers, logistics and procurement as starting points. The following contains typical actions for consideration. Further details and suggestions can be found in the additional resources.

IMMEDIATE ACTION POINTS	
	Supplies
<input type="checkbox"/>	Determine business exposure by identifying current work-in-progress inventory as well as all other inventory (including those in transit, in warehouse, in spare stock, etc.)
<input type="checkbox"/>	Quantify the impact of crisis relative to supply disruptions, for both time horizons- immediate vs longer term
<input type="checkbox"/>	Identify strategic and concentrated supplies that are at risk in major crises
<input type="checkbox"/>	Enhance inbound materials visibility (lead time, delivery schedule, etc.), especially for critical supplies, through implementing new digital technologies
<input type="checkbox"/>	Buy-ahead to procure raw material and supplies that are in short supply in impacted areas
<input type="checkbox"/>	Activate pre-approved substitutions for parts or raw-materials where the primary supplier is impacted but a secondary supplier is not
<input type="checkbox"/>	Activate product redesign or material certification resources where reliable second sources of parts or raw material are not already available
<input type="checkbox"/>	Map critically sourced materials to high-value products and revenue streams, and conducting scenario planning exercises to understand the implications
<input type="checkbox"/>	Explore and if possible, establish shared resource pools for raw materials inventory along with other manufacturers
	Suppliers
<input type="checkbox"/>	Map the company's key direct suppliers to understand their ability to meet supply requirements (over the next few quarters) and identify potential risks
<input type="checkbox"/>	Work with critical suppliers to balance the supply with demand, and to contractually agree on logistic-based costs and necessary buffer stock
<input type="checkbox"/>	Assess key tier-1 supplier's inventory, production schedules, and purchase order fulfillment status, and develop joint plans with them to utilize the flexibility that they



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	might have in production and purchase order fulfillment
<input type="checkbox"/>	Review contracts with key tier-1 suppliers to understand and assess liability in the event of short supply
<input type="checkbox"/>	Secure capacity and delivery status for tier-2 and tier-3 suppliers (which could assist in tier-1 supplier's order fulfillment performance)
<input type="checkbox"/>	For multi-sourced key inputs, move quickly to activate secondary supplier relationships and secure additional critical inventory and capacity
Logistics	
<input type="checkbox"/>	Secure capacity with in-bound and out-bound logistics partners and explore alternate routes and alternate logistics service providers
<input type="checkbox"/>	Assess alternate supply routes and transportation scenarios options (such as re-routing around a hub/port) and review current feasibility (availability, costs, permissions)
<input type="checkbox"/>	Keep up-to-date on imposed city/ state- specific restrictions that would affect transport and deliveries
<input type="checkbox"/>	Transport available inventory to areas away from quarantine/ restricted zones and near ports where it can be accessed for shipping
<input type="checkbox"/>	Aggressively explore near-shore options as potential backup to shorten supply chains by increasing proximity to customers
<input type="checkbox"/>	Secure future faster transportation options (such as courier services) as supply and capacity become available, shorten what might otherwise be slower ones with longer lead times (such as traditional hauling/freight services)
<input type="checkbox"/>	Explore resource-sharing with other enterprise (lending of idle transport or sharing of transport capacities)
Procurement	
<input type="checkbox"/>	Plan procurement based on current exposure (considering key parameters such as WIP buffer, inventory in transit, in warehouse, in spare stock, etc.)
<input type="checkbox"/>	Buy ahead to procure inventory and raw material that are in short supply in impacted areas
<input type="checkbox"/>	Re-orient procurement to updated inventory planning parameters (to minimize the risks of supply shortages) - balancing factors such as supply base risk, cash flow, perishability, etc.
<input type="checkbox"/>	Prioritize procurement on the basis of criticality of supplies mapped to high-value



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	products and revenue streams
<input type="checkbox"/>	Update procurement manual to include the priority-list of what products will be produced in the event of raw and direct material shortages
<input type="checkbox"/>	Leverage available internal and external digital technologies to equip procurement team with necessary tools to work remotely and seamlessly, and to aid collaboration with suppliers

LONGER-TERM STRATEGIES

<input type="checkbox"/>	Supplier risk management and collaborative relationships: <ul style="list-style-type: none"> ✓ Access and monitor real-time supplier data, including performance category alerts, and developing pre-emptive action plans ✓ Develop micro supply chains, which are finite and agile mini operating models with flexible contracts and manufacturing closer to point of purchase ✓ Develop shared visibility into goals, motivations as well as limitations of partnerships
<input type="checkbox"/>	Scenario planning: <ul style="list-style-type: none"> ✓ Develop and implement risk management practices ✓ Run simulations to identify 'sweet spots' between conflicting objectives, based on real-time inventory data, customer demand and supplier capability ✓ Analyze past events and hypothesize future threats to identify strategic and concentrated supplies that are at risk in major crises
<input type="checkbox"/>	Model new risks and costs: <ul style="list-style-type: none"> ✓ Explore how new tools and technologies can provide greater intelligence ✓ Expand landed-cost tools to include new elements, such as the (potential) cost of carbon offsets ✓ Develop ability to rapidly model alternate supply and transportation scenarios, such as re-routing, alternate source of supply, etc.
<input type="checkbox"/>	Technology upgrades: <ul style="list-style-type: none"> ✓ Start investments to acquire and implement digital technologies (including IoT/ cloud computing/ AI/ etc. as applicable) <ul style="list-style-type: none"> ○ For access to and monitoring of real-time data of entire supply chain ○ For facilitating cloud-office and zero touch models ○ To enable and be prepared for the digital supply network of the future ✓ Put in place network security response plans for fraudulent actions and items such as phishing, malware, etc.



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| <input type="checkbox"/> | <p>End-to-end supply chain management:</p> <ul style="list-style-type: none">Implement tools and technologies for comprehensive end-to-end supply chain managementEnhance the ability to model and predict likely supply and demand scenariosUse the learnings from the crisis to execute longer-lasting reconfigurations of supply chains to build resilience |
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