Introduction to this document

Recent macro events like COVID-19, the Russian invasion of Ukraine, and soaring inflation have stressed supply chains globally. Even when these current challenges subside, future supply chain disruptions in various forms are likely to continue.

To thrive relative to underprepared peers, companies must design their supply chain structure, processes, and organizations for resilience. It is critical to be selective in where and how to invest to stay cost-competitive while mitigating the most at-risk parts of supply chains with the highest potential financial impact.

This document explains which capabilities and enablers are needed to build resilient supply chains, and the no-regret moves that all companies should take today.
Executive Summary | Supply chain resilience creates better business outcomes and requires action today to build key capabilities and enablers

Companies that invest in supply chain resilience capabilities turn disruption into a competitive advantage. The gross profit growth of resilience leaders outpaced that of laggards by up to 55 percentage points. Leaders succeeded because they invested before they needed it.

Without these capabilities, companies are exposed to inevitable supply chain disruptions. Resilient supply chains can minimize costs and lost revenue in times of crisis and support accelerated growth in times of expansion.

Early investments in resilience can deliver immediate benefits to help fund the journey. Deploying inventory more efficiently with better demand visibility and improving procurement with better upstream visibility for sourcing are just a few examples.

Unplanned supply chain challenges will continue. It is imperative that companies prioritize investments now so they don’t fall behind peers. They must invest intelligently in supply resilience to avoid exacerbating costs.

Near-term, large opportunities exist to build supply chain resilience capabilities. This requires a holistic program:

- **Absorb**: Better handle shocks through network design, sourcing strategy, planning, and product design
- **Recover**: React faster when disruption occurs through monitoring, prediction, and crisis response

To enable these capabilities, companies need visibility into their extended supply chain; sustaining this value may require new enablers, including digital tools, governance, talent, and change management assets.
Continued uncertainty about future demand and economic stability

Benefits of supply chain resilience

Building holistic supply chain resilience
The nature of supply chain disruptions may change, but disruptions are inevitable.

Three sources of supply chain disruptions expected to continue in the future:

**Macroeconomic**
Volatile demand, vulnerable suppliers, capacity/inventory shrinkage from higher interest rates, bankruptcies from higher energy prices, etc.

**Geopolitical**
Increased power tensions leading to trade actions (e.g., tariffs, tech restrictions), military actions, ESG¹ (e.g., carbon border taxes), etc.

**Operational**
Natural disasters (e.g., hurricanes, floods), pandemics, labor strikes, labor/material shortages, catastrophic equipment downtime, etc.

Companies must prepare now to be resilient to all these unpredictable future disruptions.

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¹ ESG = environmental, social, and governance
Supply chain leaders across industries show better financial performance vs. laggards

Gross profit increase difference between leaders and laggards (percentage point differential)

- **CONSUMER**: +0–55 p.p.

Source: BCG analysis; gross profit increases from public financials, for example, companies relative to industry peers during related events ranging from 2019-2022
A resilient supply chain helps absorb shocks and recover from disruption faster – but few companies have managed to build these capabilities yet.

### Absorb
Increase ability to handle supply chain shocks
- e.g., tiered sourcing strategy for custom/critical components through product redesign or alternative sourcing options

### Recover
React faster when supply chain disruption occurs
- e.g., digital twin of operations to evaluate disruption scenarios and prepare supply chain to minimize financial impact

[Graph showing maturity levels and percentage of companies in each quadrant]

- **High maturity**: 5%, 10%
- **Low maturity**: 80%, 5%

% Denotes % of companies in quadrant

Source: BCG 2022 supply chain resilience capabilities survey (N=136)
The time to act is now to create a competitive advantage with supply chain resilience

1 Supply chains can create a competitive advantage if they become resilient to prepare for inevitable disruptions; this creates more stable operations and predictable financials in good times and bad

2 Act now to build supply chain resilience and narrow the gap to leaders who continue to invest; prioritizing investments helps fund the journey while building long-term capabilities

3 Read on to identify several actions to prepare your supply chain for resilience, including how to assess risk exposure, gain real-time visibility, and absorb and recover from the most pressing risks
BCG Executive Perspectives

AGENDA

- Benefits of supply chain resilience
- Building holistic supply chain resilience
Excellence in supply chain resilience requires a holistic approach.
Visibility and Assessment | Understand potential problems and quantify the magnitude of potential exposure

**Visibility**
- Create visibility across network, including multi-tier supplier mapping, multi-echelon inventory, production facilities, and transportation
- Quickly view changes in performance across various KPIs in different parts of the network

**Assessment**
- Establish KPIs that measure a company’s level of resilience capabilities
- Identify potential exposures at the part, supplier, location, and product level
- Prioritize risks by quantifying the magnitude and likelihood of exposure
- Develop capability building and a risk mitigation roadmap to improve resilience

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**Case example:**
**industrial goods company**

**Why was it important?**
Client concerned about geopolitical & trade risk with large percentage of components sourced from China, especially single sourced, with specialized technology

**How did we help?**
Built an enhanced monitoring dashboard to enable risk segmentation and quantification; developed a mitigation roadmap to address risks

**What was the impact?**
Integrated dashboard into daily operations planning; executed 5 key mitigation solutions tied to sourcing risks for 85% of revenue
Recover | Continuously monitor using advanced analytics coupled with predictive algorithms

**Monitoring/sensing**
- Real-time monitoring leveraging digital tools to identify external events that may impact ops
- Proactive alerts that sense operational deviations & disruptions

**Prediction**
- Predictive algorithm to show how disruptions could impact operations
- Scenario modeling that will show best action given changing conditions

**Crisis response**
- Established team(s), processes, & playbook to optimize decision making
- Leverage real-time data to mitigate crisis within existing process

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**Case example: medical device company**

**Why was it important?**
Client anticipated shortage of semiconductors and needed a data-driven approach to monitor and mitigate component supply risks

**How did we help?**
Implemented a data room and control tower to develop data-driven risk identification for prioritization and management of supply base

**What was the impact?**
Reduced potential revenue loss by 20%, prioritizing product redesign/substitution for most profitable products & health criticality to minimize patient impact
Absorb | Prep for events through network design and inventory planning while developing comprehensive sourcing strategy

**Network design**
- Network map of all locations and flows across multiple tiers of the supply chain
- Scenario evaluation for single points of failure

**Sourcing strategy**
- Tiered multi-sourcing strategies with recovery for single-sourced items
- Senior and cross-functional engagement on supplier location selection

**Inventory & planning**
- Data-driven inventory targets set with additional safety stock for high-risk items
- Sales forecast and demand plan to determine supply & production needs

**Flexible products**
- Sourcing strategy to identify source components with roadmap to migrate to flexible designs
- Process for rapid emergency design change, substitution, and spec deviation

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**Case example: consumer beverage company**

**Why was it important?**
Client adversely affected by supply chain disruptions and expected to underdeliver export volumes due to labor & raw material shortages

**How did we help?**
Developed cross-functional initiatives focused primarily on network design and sourcing/inventory strategy to increase resilience

**What was the impact?**
Reduced addressable cost by 20% while increasing volume per site by 50%, significantly reducing planned expansion capex
Enablers | Resilient companies build capabilities to strengthen overall operations organization and processes

**Data, analytics, and tools**
- Build ecosystem of new tools to better anticipate risks and gain a competitive edge
- Improve real-time visibility into multiple supply chain tiers and across network
- Leverage advanced and predictive analytics to enable data-driven planning

**Culture**
- Win hearts and minds of employees
- Make talking about risk and resilience as commonplace as cost and efficiency
- Embed resilience in every function across organization and decision processes

**Process and operating model**
- Integrate resilience into supply chain, order execution, procurement, and strategic planning
- Focus on both long-term improvements and near-term crisis response

**Governance**
- Align metrics and incentives to resilience measures
- Establish regular cadence of executive engagement
- Build cross-functional risk and resilience teams with direct line of reporting to COO or CEO

**Talent**
- Build new strategic, tactical, analytical, and digital capabilities required to enable resilient operations
- Hire, train, and retain leaders and employees committed to resilience across the organization

**Change management**
- Enable sustainable change to the way work is done and decisions are made
- Ensure that change is both deep (every level) and broad (cross-functional)
Supply chain resilience strategy is accelerated when leveraging digital and analytics tools.
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