

### Reimagining supply chain operations for a more resilient future

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#### **Key messages**



The world is becoming riskier. Global production shocks are more frequent and severe, causing losses worth 45% of one year's EBITDA during a decade



Supply chains may shift geographies : between \$2.9 and \$4.6 trillion in annual trade could move to new locations based on economic and noneconomic factors



3 Movement is not enough. Over 90% of executives plan to invest in value chain resilience, including E2E transparency, stress testing, and reducing exposure to shocks.



4 Rethinking resilience versus efficiency is a strategic issue for every company and should be on the CEO agenda. The winners will take advantage of the post-Covid transition

## Supply chain risk has impact when unexpected events meet vulnerabilities in the supplier network or operations

Value chain risk



Unexpected value chain disruptions can cause operational and/or financial impact

Shock



Unexpected events that disrupt the value chain, e.g.,

- Force majeure
- Macropolitical
- Malicious actor
- Idiosyncratic

Vulnerability



Attributes and approaches that make a value chain more/less resilient, e.g.,

- Financial
- Operational
- Structural
- Regulatory
- Reputation
- Organizational maturity
- Data Security

### External shocks are often impossible to predict, but happen with regularity



Expected frequency of a disruption (in years) by duration Based on expert interviews, n=35

# Value chain exposure to shocks varies by the type of shock experienced



\* Full analysis considered 23 value chains; \*\* e.g., earthquake, tsunami

Source: McKinsey Global Institute analysis

#### Disruptions have a measurable impact on the bottom line across industries

### Net present value of expected losses over a 10 year period % annual EBITDA

Aerospace (commercial)	66.8	
Auto	56.1	
Mining	46.7	
Petroleum products	45.5	
Electrical equipment	41.7	
Glass and cement	40.5	
Machinery and equipment	39.9	
Computers and electronics	39.0	
Textiles and apparel	38.9	
Medical equipment	37.9	
Chemicals	34.9	Average
Food and beverages	30.0	4.00/
Pharmaceuticals	24.0	42/0

1. Based on estimated probability of severe disruption (constant across industries) and proportion of revenue at risk due to a shock (varies across industries). Amount is equivalent to one-year's revenue, i.e., is not recurring over the modelled ten-year period. Calculated by aggregating the cash value of expected shocks over a ten year period based on averages of production-only and production-and-distribution scenarios multiplied by the probability of the event occurring for a given year based on expert input on disruption frequency. The expected cash impact is discounted based on each industry's weighted average cost of capital

2. Based on weighted average revenue of top 25 companies by market cap

Source: McKinsey Global Institute analysis

Up to \$4.6 trillion in trade flows could shift to different countries over the next 5 years as companies rethink supply chains

				Low estimate 📃 High estima	
	Economic factors <sup>1</sup>	Non-economic factors <sup>2</sup>	<b>Total trade</b> (\$b)	Annual exports that could shift geographies (\$b)	
Auto			1,730	349	
Electrical equipment			928	319	
Machinery and equipment			1,455	362	
Aerospace			333	110	
Semiconductors			995	184	
Communication equipment			673	363	
Chemicals			1,584	172	
Computer and electronics			708	247	
Medical devices			268	120	
All value chains (including other)			\$18.0T	\$2.9T (16%) \$4.6T (26%)	

1. Economic factors include variable cost difference, capital intensity, product complexity, and trade weighted distance

Easeibility of shifts

2. Non-economic factors refer to likelihood of increased market intervention to advance objectives such as national security, national competitiveness, and essentiality

Source: McKinsey Global Institute

Low shift

feasibility

High shift

feasibility

ıte

### Regionalization of supply chains has already been underway

Share of intraregional goods trade in total trade (exports + imports), (1995-2019) Percent



Intra-regional goods trade by value chain, 2018



## Building resilience is an increasing priority among supply chain executives

#### **Executive survey results,** May 2020



Supply chain leaders planning to increase resilience<sup>1</sup>



 Would increase resilience
at the expense of short term efficiency<sup>2</sup> Actions to build resilience, % of respondents<sup>2</sup>

Dual sourcing 47 More inventory of critical products 40 Near-shoring of supplier Regionalization 38 30 SKU rationalization 27 Higher safety stock Back-up production sites 27 15 Near-shoring of production 15 Increase DC network density

1. Survey of leading executives, n=60

2 Survey of leading executives, n=605

Source: McKinsey Global Institute survey of executives

53

#### Resilient and efficient supply chains have four key features...



**E2E visibility** on risks across the value chain from tier N supplier to customers



Regular stress-testing and reassessment



**Digital anchored actions** to reduce vulnerability and exposure to shocks



CEO agenda has both resilience & efficiency to ensure reimagined supply chain of future

## ...which requires new ways of working



**Resiliency metrics** balanced against growth and cost metrics, built into performance management system



**New tools and capabilities** to ensure both resilience and efficiency



Investor and customer communications program to develop understanding of built-in resilience for investors to value



Governance and processes to manage resilience over the long term

## Examples of companies that have taken action to build supply chain resiliency



#### 2017 hurricane Maria

**Identified disruption threat** days prior to landfall and **created "war room"** to identify supply chain threats and critical sub-tier suppliers

**Relocated essential inputs and flexed production** from Puerto Rico to Kentucky manufacturing sites

**Secured alternative procurement sources** in advance, executing a \$1.3 million purchase for items at risk of shortages

#### 15 days

Biogen's stock price **recovery post-storm**, while competitors saw Puerto Rico production disrupted for 6+ months



#### Covid-19

Enhanced supply chain visibility through RFID tracking of products in outsourced manufacturing operations

**Investments in predictive demand analytics** enabled Nike to minimize the demand impacts of store closures in China amid COVID-19

Rerouted inventory from in-store to digital sales channels, identifying excess inventory in advance to minimize build up

#### 5% vs. 45% sales decline

Nike compared to major foreign competitor

### What executives should ask about resilience



- **1** What risks are we exposed to? How are we quantifying the **'value at stake'** from value chain disruption?
- 2 Do we have the right **balance between resilience** and efficiency? Has our risk appetite been reflected in performance measures?
- **3** Are we clearly communicating to investors how our investments in resilience will pay off?
- 4 What **new opportunities** could arise across products and geographies as global value chains shift?
- **5** Are we positioned to **go on the offensive** if our competitors face disruption?



### **Questions?**

Please see full MGI report on Supply Chain Resiliency at:

https://www.mckinsey.com/business-functions/operations/our-insights/riskresilience-and-rebalancing-in-global-value-chains

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