



HOW THE WORLD JUST GOT BIGGER (AGAIN)

Three Strategies for Increased Supply Chain Resilience

Apurva Nair, Partner

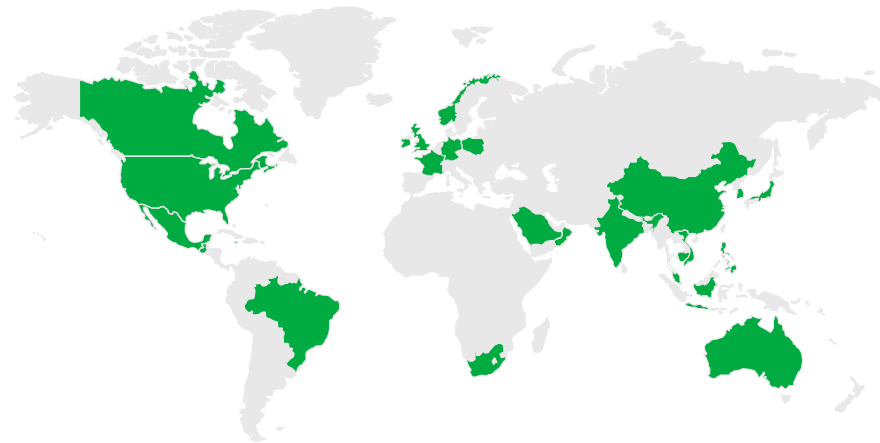
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APURVA NAIR

Partner, New York



Truly Global Experience



Personal track record

40+

Transformation projects for corporations and PE portcos

\$2B+

Enterprise value delivered for clients

Select Industry Experience

- Automotive/Manufacturing / Industrials
- Building Products (fasteners, flooring, roofing, doors, windows, cabinets, hardware, etc)
- Telecom and Software
- Financial Services and Insurance
- Retail (finished goods for resale)
- E-Commerce

Select Category Expertise

- Key commodities (wood, metals, chemicals, plastics, cotton, etc) and associated finished goods
- Fiber and ancillary telco products/contracts
- Machinery (light and heavy) and associated parts
- MRO spend across industries
- Practically all key Indirect spend categories

MULTIPLE CRISES ARE RESHAPING THE WORLD AND UNDERMINING PAST CERTAINTIES

There is an urgent need for companies to rethink their supply chains

- Multiple crises are reshaping the world and uprooting conventional supply chain logistics
 - Single source, long-distance, international supply chains during golden decades of global economic growth are under scrutiny
- Current events are causing companies to increase inventories
 - Very useful short-term tactic
 - Increased inventory costs will lead to higher prices and lower productivity
- Alternative solutions can be more sustainable in certain circumstances

Point of View – Approaches to increase resilience

- Examine current approaches companies are using to make supply chains more resilient
- How can current approaches be combined into longer-term supply chain strategies
- Provide a decision-making matrix to help COOs and CPOs think through choices they need to make



HISTORIC GLOBAL TRADE INCREASE AND CURRENT EVOLVING ECONOMIC LANDSCAPE

1970-2000

- Global trade more than doubled to account for 60% of world GDP
- US international trade grew to 61% of US GDP by 2008
- Expansion in international trade increased global GDP by 13.3x from 1970-2000
- Global trade increase drivers
 - Financial liberalization: Removing restrictions on international finance flows
 - Outsourcing: Led to disaggregation of industry and business structure that were previously vertically integrated
 - Offshoring: The relocation of production and services to lower-cost economies, particularly China
- The world is flat
 - Increasing globalization is synonymous with transformation of the supply chain
 - Traditional competitive advantages disappeared due to tech, economic liberalization, and globalization
 - Developed over-reliance on single-source, international supply chains

Post-millennium supply chain tests

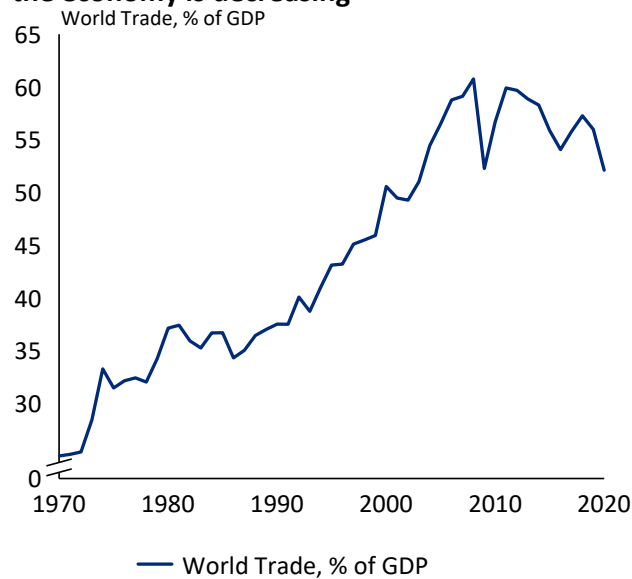
- **Financial Crisis of 2007-09**
 - Suppliers faced payment issues due to the banking crisis
- **Trade sanctions between the U.S. and China**
 - Reduced trade due to battling back and forth between major countries
- **COVID-19**
 - Lengthy trade routes and dependence on China led to China's share of trade declining
 - Difficulty maintaining supply while much of world was shut down
 - Still feeling repercussions of COVID-19
- **Invasion of Ukraine**
 - Oil and gas price increases
 - Driving inflation in global food prices
 - Commodities or components from Russia and Ukraine will remain out for considerable time



Since 2008, global trade has
DECLINED BY 8%

THE WORLD IS NO LONGER FLAT- SINCE 2008 THERE HAS BEEN AN INCREASED INSTABILITY IN INTERNATIONAL TRADE

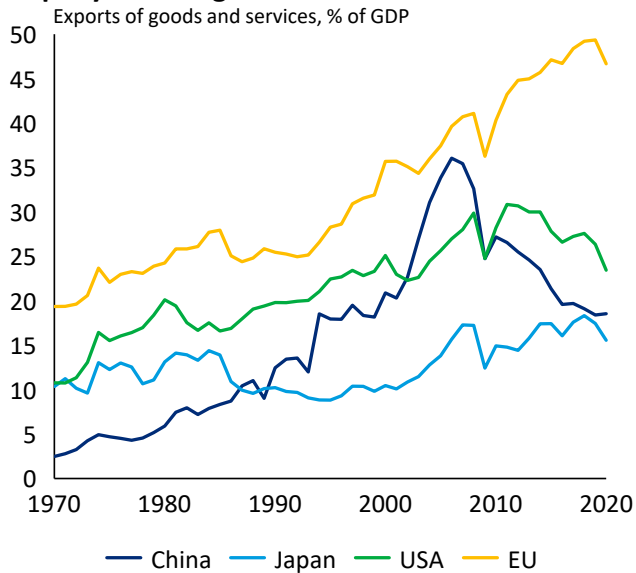
Level of importance of world trade for the economy is decreasing



- Economic dependency for a globalized economy has been volatile for over a decade
- Unpredictable political climates, trade barriers, and natural disasters have **shifted the need for resilient and robust over cost-effective supply chains**

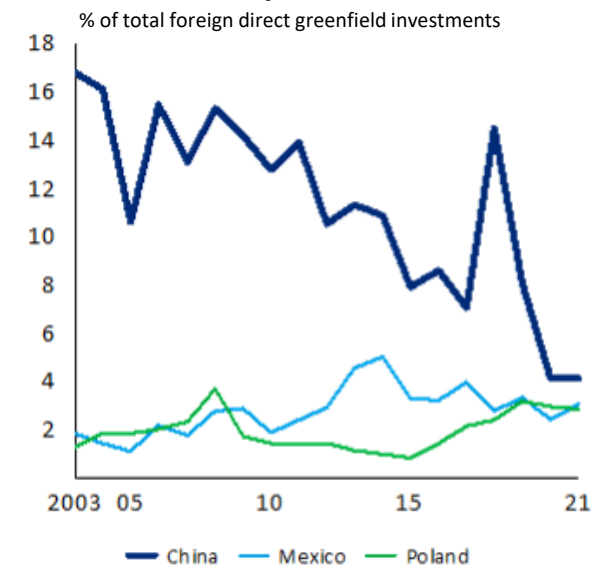
Sources: The World Bank, UNCTAD
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Prominence of exports in Chinese economy is rapidly declining



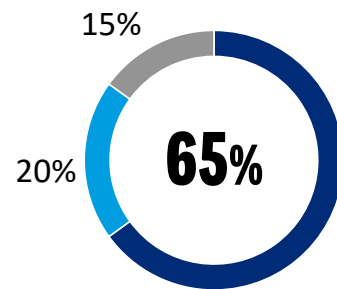
- Advanced economies, such as China and the U.S., are becoming increasingly focused on domestic markets
- Proximity that allows increased collaboration and **frequent reassessment for adaption** are becoming more important than lowering costs

Share of total investments steering away from Sino-centric system



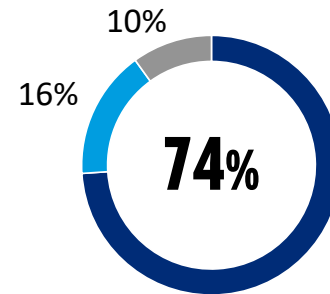
- Economies are starting to shift towards **reorganized globalization** and regional integration
- Investments into other low-cost countries like Mexico are increasing; while prominent trading economies like China and India are decreasing

RECENT CRISES HAVE INCREASED CONSUMERS' AWARENESS FOR THE ORIGINS OF THEIR PRODUCTS



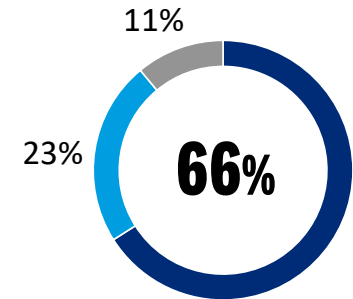
DOMESTIC BRANDS

I now have a stronger preference for domestic brands, regardless of where they are produced



LOCAL PRODUCTION

It is more important to me than it was before to buy locally manufactured products



SUPPLY CHAIN TRANSPARENCY

I am now more interested in where the components built into my products are coming from

■ (Fully) agree ■ Neither ■ (Fully) disagree

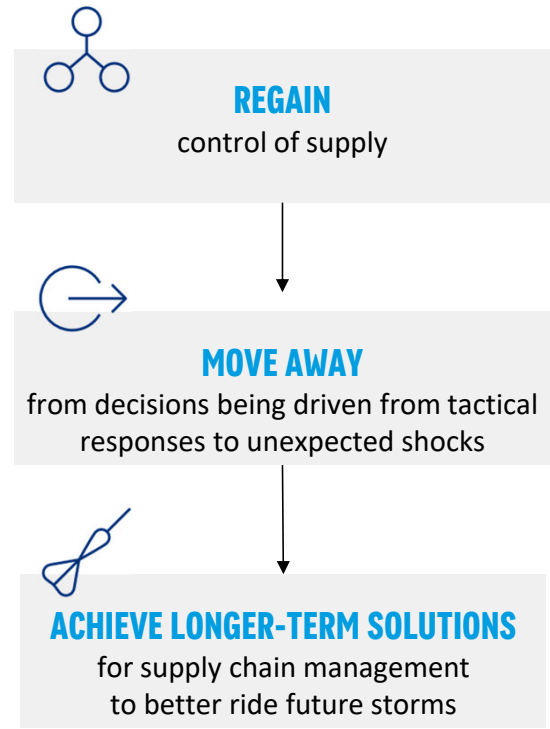
Source: Oliver Wyman Consumer Survey 2022, n=5,207; 1011-1092 per country

THE INVASION OF UKRAINE AND EVOLVING ECONOMIC LANDSCAPES

War in Ukraine	Economic effects
<ul style="list-style-type: none"> • Pushing up oil and gas prices significantly 	<ul style="list-style-type: none"> • Low fuel prices have historically been correlated with high economic growth while high fuel prices dampen economy
<ul style="list-style-type: none"> • Driving inflation in global food prices as supply of food grains becomes constrained 	<ul style="list-style-type: none"> • Surge in commodity prices adding to inflationary spiral • High food prices and low availability are correlated with social instability (already being witnessed in Sri Lanka)
<ul style="list-style-type: none"> • Sourcing commodities or components from Russia and Ukraine will remain unavailable for considerable time to come 	<ul style="list-style-type: none"> • Year-on-year increases in globalization are no longer a given

- New uncertainties leading to companies to stockpiling inventory, raw materials, and components
- Compounded by impact of climate change

Company Goals in evolving economic landscape



THREE STRATEGIES FOR INCREASED SUPPLY CHAIN RESILIENCE

1 BUILD UP AND PLAN INVENTORY



BUILD UP and plan inventory

The quickest and simplest way to increase resilience is to increase inventory

Major impact as a buffer between supply and demand

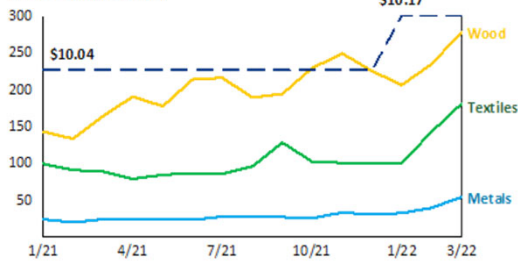
Increased inventory = increased costs
Many companies are viewing this as a price worth paying

Requires reorganization of warehouse system
Careful inventory planning is needed to contain costs, distinct possibility they could balloon out of control

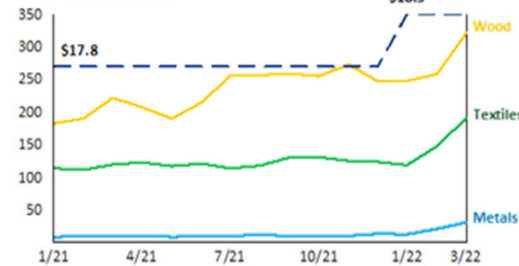
2 FINDING LOCAL SUPPLIERS – REGIONALIZATION AND LOCALIZATION

— GDP per capita, \$US 000

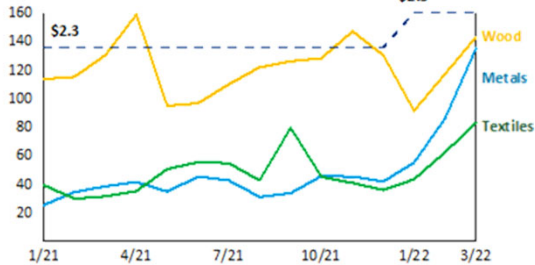
Mexico – Monthly exports by commodity
2021-2022, \$US MM



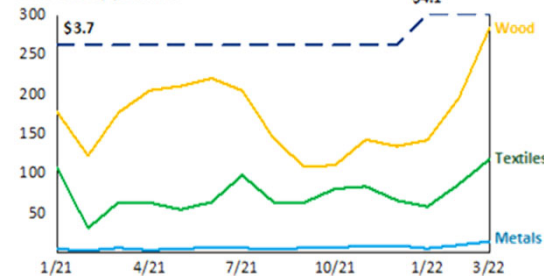
Poland – Monthly exports by commodity
2021-2022, \$US MM



India – Monthly exports by commodity
2021-2022, \$US MM



Vietnam – Monthly exports by commodity
2021-2022, \$US MM



Source more commodities closer to customer bases

- Local supply model has **every region with its own supply chain**
 - Limits risk of major shock impacting all regions equally
 - Separates global supply chain into interconnected, independent ecosystems

Regional concentration of production has inherent risks

- Shifting production to multiple regions such as Mexico, Poland, India, and Vietnam
 - Limit supply chain disruption
 - Avoid high shipping costs
- Company is required to put in place localized supply chains to support strategy

Win-win to the company and local economy

- Increases exports for developing economies, positively impacting GDP
- Increases supply chain resilience
- Presents companies with opportunity to up ESG goals

3 NEARSHORING PRODUCTION






Relocate production closer to home

- Company can maintain greater control
- Predicated on expectation of international supply chain disruptions

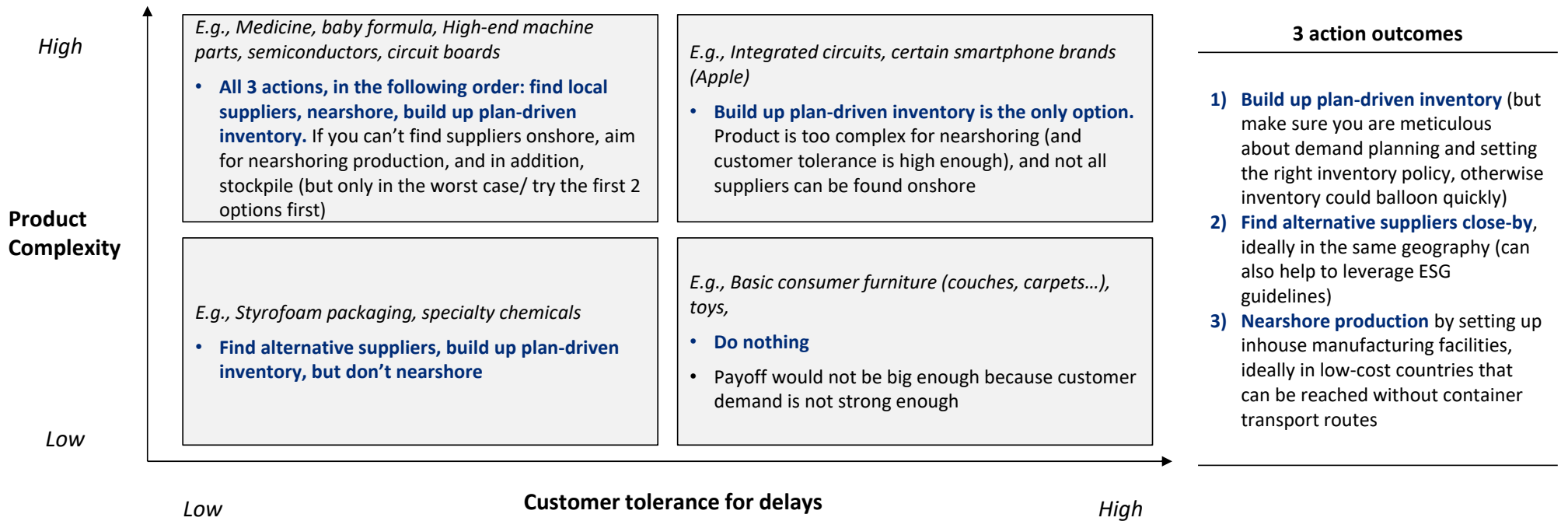


- Must ensure supply routes for new production facilities are more robust than ones they replace
- Gradual process of shifting total production percentages
- Increases exports for nearby developing economies

RECENT EXAMPLES OF NEARSHORING AND REGIONALIZATION

Company	Changes	Effects
	<p>2012- Had almost entire production in Asia 2013- Invested in India and Brazil 2022 - Invested \$50 MM in a manufacturing plant in Mexico</p>	<p>Long term regionalization and diversification strategy, moving closer to Dallas distribution center Positive impact to Mexican economy</p>
	<p>2020- Combination of nearshoring and regionalization. Invested \$350 MM in Costa Rica assembly plant and establishing U.S. based manufacturing campus in Ohio</p>	<p>Increased flexibility in supply and purchasing strategies</p>
	<p>Combination of regionalization and nearshoring, moving production to Turkey for EMEA markets and furniture to Czech Republic for European market</p>	<p>Positive impact to Czech economy Increased flexibility in supply and purchasing strategies</p>

THE OW SUPPLY CHAIN DECISION MATRIX



1 Future supply chain strategies

- Need to be more resilient and flexible than today
- Shocks are likely to be increasingly common
- Reshaping supply chains is a complex task

2 Focus of the Decision Matrix

- Identify which individual or combination of approaches is optimal: all three can be combined to maximize effect
- Focuses: Complexity of product, timeliness of supply

3 Circumstances not to invest in supply chain

- Products of low complexity, low time importance
- Bottom, right quadrant of matrix
- Any of three actions are hard to justify financially

OPERATIONALIZING SUPPLY CHAIN RESILIENCE

KEY TAKEAWAYS

- Speed is of the essence for short-term, tactical responses to supply-chain challenges
- Implementation of a new strategy takes longer to bear fruit
- Staged approach for combination of supply chain strategies
 - will take some time
 - Incorporate measures to ensure increased resilience even during implementation phase
- Tomorrow's supply chain maps will look very different from yesterdays
- Increased resilience of supply is priority for every operating agenda



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