Impact of COVID-19 on our Industry

Dr. Mahesh Srinivasan, Ph.D.
Associate Professor of Supply Chain and Operations Management and Director of the Institute of Global Business in the College of Business Administration at The University of Akron

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Dr. Mahesh Srinivasan, Ph.D.
The University of Akron

Dr. Mahesh Srinivasan is an Associate Professor of Supply Chain and Operations Management and Director of the Institute of Global Business in the College of Business Administration at The University of Akron, Ohio. He has a Ph.D. in Supply Chain Management and a master’s degree in Business Logistics from The Pennsylvania State University and a bachelor’s degree in Mechanical Engineering from the University of Pune, India. Dr. Srinivasan’s interests are in the areas of Supply Chain and Operations Management, including global supply chains, supply chain risk management and supply chain disruptions.

His research articles have appeared in many prestigious peer review journals, including the Journal of Business Logistics, International Journal of Production Economics, Transportation Journal, Supply Chain Forum: An International Journal, Business Horizons Journal, Management Research Review, European Management Journal and International Journal of Enterprise Information Systems. He serves on the Editorial Review Boards of the Journal of Business Logistics and Journal of Transportation Security. He was a part of the Working Committee of President Obama’s initiative on Advance Manufacturing Partnership (AMP) 2.0. He also has multiple years of industry experience working for a major German multinational company, in addition to consulting with companies in the areas of Supply Chain and Logistics Management.
SOURCING, LOGISTIC AND ECONOMIC IMPACTS OF COVID-19

Mahesh Srinivasan, Ph.D.
Associate Professor of Supply Chain and Operations Management
Director – Institute for Global Business (IGB)

April 3, 2020
ECONOMIC, LOGISTIC AND SOURCING IMPACTS OF COVID-19

• Overview – Impact of COVID-19
  • Supply chain and logistics
  • Economic

• Short-term impacts and planning
  • Managing supply chain disruptions
  • Financial and cash flow

• Long-term strategic planning

• Geopolitical implications
COVID-19: A GLOBAL PANDEMIC

Source: John Hopkins Coronavirus Resource Center
COVID-19: A GLOBAL PANDEMIC

Infections by Country

Dates are for Ministry of Health, Labor, and Welfare announcements. nippon.com
SOME HAVE MANAGED TO FLATTEN THE CURVE

Note: JHU CSSE reporting began on Jan. 22, when mainland China had already surpassed 500 cases.
Source: Johns Hopkins University Center for Systems Science and Engineering
SUPPLY CHAIN IMPLICATIONS

• Comparisons to past events - Japanese earthquake, Thailand floods, SARS, H1N1, Katrina...etc. are inaccurate

• This is quickly turning into an unknown-unknown event

• COVID-19 impacts both supply and demand

• World and economies more inter-connected

• Some of the stoppage in economic activity is necessary from a health and well-being perspective
SHORTAGE OF PARTS FROM CHINA

• Chinese Lunar New Year end of January/beginning of February 2020
• Business already factored in Chinese factories closure due to the holiday
• This built-up inventory has bailed business out for the 1st 2-3 weeks of the epidemic
SHORTAGE OF PARTS FROM CHINA

• S. Korea started seeing part shortages towards the end of February/beginning March
• Japan started seeing part shortages around the 1st week of March
PART SHORTAGES IN USA

- About 4 weeks shipping lead-time from China to USA
SPREAD IN MAINLAND CHINA

Spread in mainland China

Note: This graphic does not reflect cases from Hong Kong, Macao, or Taiwan.

Last updated: March 30, 2020 at 9:06 a.m. ET
Source: Johns Hopkins University Center for Systems Science and Engineering
ON THE GROUND IMPLICATIONS IN CHINA

Manufacturing Capacity & Production

On average, suppliers are operating at **50% CAPACITY**

Proportion of normal staffing levels in Chinese manufacturing facilities are at **56% CAPACITY**

Transportation & Logistics

- **62%** of respondents are experiencing delays in receiving orders from China
- **48%** of companies are experiencing delays when moving goods within China
- **46%** of companies report delays loading goods at Chinese ports

Source: ISM COVID-19 Survey: Impacts On Global Supply Chains
ON THE GROUND IMPLICATIONS IN CHINA

Impacts to the Business

1. Getting goods to market to meet customer demand
   - 57% of companies reported worsened lead times since late 2019

2. Financial impact

Supply Management Challenges

- MORE THAN 44% of respondents do not have a plan in place to address supply disruption from China
- Of those, 23% report current disruptions

Source: ISM COVID-19 Survey: Impacts On Global Supply Chains
CHINA GETS BACK TO WORK

Economic output as a percentage of normal rate, by week

Source: Bloomberg Economics

Source: ISM COVID-19 Survey: Impacts On Global Supply Chains
# CHINA GETS BACK TO WORK

## Ocean Carriers Blank Sailings

**Week 13 = March 23-29, 2020**

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**TOTAL**

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Source: Rohlig Logistics
IS AIR FREIGHT AN OPTION?

• Air freight rates coming out of China have almost doubled or tripled in the past few weeks
• Passenger flights now carrying cargo (e.g. Lufthansa, American Airlines, Korean Airlines)

SOURCE: WSJ - DANIEL SLIM/AGENCE FRANCE-PRESSE/GETTY IMAGES
COVID-19: A GLOBAL PANDEMIC

Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins...

Total Confirmed: 874,081

Confirmed Cases by Country/Region/Sovereignty:
- 189,633 US
- 105,792 Italy
- 102,136 Spain
- 82,359 China
- 72,383 Germany
- 52,836 France
- 47,593 Iran
- 25,504 United Kingdom
- 16,605 Switzerland
- 13,964 Belgium

Total Deaths: 43,291
- 12,428 deaths Italy
- 9,053 deaths Spain
- 3,523 deaths France
- 3,193 deaths Hubei China
- 3,036 deaths Iran
- 1,789 deaths United Kingdom

Total Recovered: 185,194
- 76,382 recovered China
- 22,647 recovered Spain
- 16,100 recovered Germany
- 15,729 recovered Italy
- 15,473 recovered Iran
- 9,522 recovered France

Source: John Hopkins Coronavirus Resource Center
DOMESTIC TRANSPORTATION SHORTAGES

• The US has faced a transportation capacity shortage the past couple of years
• Demand surges due to panic buying of some products has caused further transportation capacity bottlenecks
• e-Commerce companies are stretched with distribution capacity constraints
DOMESTIC TRANSPORTATION SHORTAGES

• Spot market prices for trucking have spiked
• Transportation companies encountered an over 50% increase in grocery and discount store orders
• FedEx and UPS have suspended their service guarantees

Source: Flickr user waitscm
IMPACT ON LARGE SEA-PORT CITIES
DEEP SLUMP
U.S. TRADE IS SHARPLY SLOWING

Source: IHS Markit data compiled by Bloomberg
IMPACT ON THE RUBBER AND ELASTOMER INDUSTRY

• Big 3 and Asian automakers have halted production in their North American plants
• Goodyear has halted production at plants in North and South America and earlier in Europe
• Some business considered “essential” and getting a waiver to continue operations
• North American oil market prospects look grim
IMPACT ON THE RUBBER AND ELASTOMER INDUSTRY

• Upstream supply chain issues may restrict material availability, hindering operations in many sectors coupled with a drop in demand

• The Medical Equipment & Supplies Manufacturing cluster is expected to see a strong surge in demand

• Many businesses implementing furloughs and cutting employee salaries
BROADER ECONOMIC IMPLICATIONS

• Understand where you are positioned in the supply chain
• Does most of your business come from OEMs?
• This could have near to medium term implications for the demand side of your business
SUPPLY CHAIN ISSUES WITH MEDICAL SUPPLIES

• FDA has suspended inspections in countries hit by the pandemic
• Some of the manufacturing requires investment in capital equipment costing few million dollars
• Shortages of raw materials to make some of the equipment (e.g. masks)
• Countries are placing restrictions on export of drugs and medical supplies
• Companies becoming innovative
SHORT TERM ACTIONS

• Crisis/ Disruption management
• Review of suppliers
• Review of products/customers
• Financial and cash flow management
• Communication with stakeholders
• Decision-making authority
CRISIS/ DISRUPTION MANAGEMENT

• Have a crisis/disruption management team
• Have a clear flow of information and clear decision making authority
  • Have a clear, fact-based and consistent messaging
• Viability, health and well-being of your key stakeholders should be paramount
  • Customers and Suppliers
  • Employees
  • Communities
CUSTOMERS AND SUPPLY MANAGEMENT

• How to fulfill customer orders when you have limited supply?
  • Allocation, Auctions, substitution/ demand-shaping

• Ensuring flow of supplies
  • Understand the criticality of parts
  • What are your supplier capabilities?
  • Beware of quality issues, spurious parts
  • Consider your (smaller) supplier and customer viability and financial health
SHORT TERM ACTIONS

• Force Majeure Protections
• Business Interruption Insurance
GLOBAL PANDEMICS AND NATURAL DISASTERS – BLACK SWANS
GLOBAL PANDEMICS AND NATURAL DISASTERS – BLACK SWANS

• Known-known risks
• Known-unknown risks
• Unknown-unknown risks (Black Swans)
LONG-TERM STRATEGIC PLANNING AND GEO-POLITICAL IMPLICATIONS

- China may no longer be the preferred supply source
  - Hard to replace in terms of quality, capacity and cost
- South East Asia (Thailand, Vietnam, Cambodia), India, Eastern Europe
- Nearshoring and on-shoring review
- A complete strategic review of your supply chain strategy
THE VALUE OF INTEGRATIVE RELATIONSHIPS

• Strongly consider asset based integrative relationships with your suppliers and service providers

• Flexible contracts for bought out parts & materials and sub-contract manufacturing
UNDERSTAND YOUR SUPPLY CHAIN

• Map your supply chain multiple tiers up
• Identify and eliminate your dark corners
  • Where are your tier2, tier3,… suppliers located?
  • What are the interdependencies between your tier1, tier2, tier3,… suppliers?
• Your supply chain is only as strong as your weakest link
• Include contingency planning and resilience as a permanent feature of your supply chain
• Stress-test your supply chain
MAPPING YOUR SUPPLY CHAIN
MAPPING YOUR SUPPLY CHAIN
QUESTIONS?

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