

Lehigh Business Supply Chain Risk Management Index

# Quarterly Report

1st Quarter / 2021





#### LEHIGH BUSINESS SUPPLY CHAIN RISK MANAGEMENT INDEX

Welcome to the Lehigh Business Supply Chain Risk Management Index Report developed by the Center for Supply Chain Research at Lehigh University and the Council of Supply Chain Management Professionals.

We developed this index to better understand the different kinds of supply chain risks businesses face. Supply chain professionals' rate the likelihood that the risk in the 1st Quarter of 2021 compared to the risk in the 4th Quarter 2020 will likely increase, remain the same or decrease for 10 different categories.

The Lehigh Business Supply Chain Risk Management Index (LRMI) value is a number between 0 - 100, where greater than 50 suggests increased risk, equal to 50 suggests the same risk and less than 50 suggests decreased risk. The average LRMI is 66.64 suggesting a increased level of risk in the 1st Quarter.

The table below reflects the 10 categories of risk from highest risk to lowest risk when evaluated independently as perceived by supply chain professionals.

If you would like to have additional information about the survey or to participate in the survey please contact Dr. Zach G. Zacharia at zacharia@lehigh.edu.



## Overview

	Current	Last Quarter	
Risk Type	<b>Risk Index</b>	Risk Index	Trend
Transportation Disruption Risk	77.34	69.60	1
Customer Risk	74.22	70.66	1
Economic Risk	72.66	78.26	
Supplier Risk	71.88	74.38	
Cybersecurity and Data Risk	71.88	72.13	
Government Intervention Risk	71.88	70.43	1
Operational Risk	61.72	60.00	1
Technological or Competitive Risk	55.47	58.26	
Quality Risk	55.47	56.80	
Environmental Risk	53.91	59.13	+
Average Risk Index	66.64	66.97	+

The Risk Index is a number between 0 - 100.

The further the number is from 50 the greater the level of risk. The arrow indicates whether the risk is increasing or decreasing in comparison to the previous quarter.

#### Four biggest risks in 1st Quarter 2021

(When comparing across all 10 risks)

- 1. Transportation Disruption Risk
- 2. Customer Risk
- 3. Economic Risk
- 4. Supplier Risk

#### Did You Know?

The Lehigh Business Supply Chain Management Risk Index for the 1st Quarter in 2021 is





## 01 Transportation Disruption Risk



Some examples are: fuel prices, driver shortage and infrastructure demand volatility.

- Transportation disruptions is a daily issue in the US now. Whether it is part of load delays due to Covid labor issues to truck lanes and parcels at "Super Peak" levels. Additionally, air freight under commercial flights is still at historical low levels.
- All of this adds up to delays and constant tracking to expedite to get materials in or products delivered to the customer.
- Manufacturing slowdown?
- Demand is beginning to be a bit more back to normal patterns so the demand swings that cause transportation challenges seem less dramatic





# 02 Customer Risk

Some examples are: fast changing customer demand, easy to lose customer loyalty, changing customer base demographics, hard to predict customer behavior and hard to service customer.

- More risk with spike in covid expected
- Pandemic has slowed/pushed out orders
- Remains high and a bit uncertain due to covid impact on customer buying
- Largely depends on extent of government imposed lockdowns & business closures. Reduced demand for our clients' goods/services results in less business for us.
- Impact of regulatory agencies and reaction to safety relative to Covid may have an impact.
- Customer demand has increased with online shopping and trends point toward a volatile climate with customer satisfaction based on carrier performance. This mainly points to the challenges and volume restrictions in small parcel networks.
- Fall 2020 volume spikes will dictate this.
- Uncertainty over economic shutdown equates to scaled back or suspended jobs & an increase in payment cycles.
- Hard to predict customer behavior says it all.
- Some coming back, some slowing down, some unknown.





# 03 Economic Risk

Some examples are: increasing energy costs, commodity price volatility, labor shortages, sudden demand shocks, global energy shortages and border delays.

- Labor shortages. High debt. Further separation of those with and those without means to cope; and ever present stimulus to keep everything afloat -
- We worry that the now prolonged impacts of COVID as well as anti-business/more regulation policies could induce a further economic contraction
- There is risk of labor shortage as well as commodity shortage with less demand creating reduced production.
- Possible increase in labor risk as corona spikes in USA and some other countries prior to widespread availability of vaccines
- Labor Shortages for Fulfillment Center environments where distancing must be maintained or entire warehouses are closed down for sanitization when someone is COVID positive.
- Driver shortage is intensifying with roll-out of Drug and Alcohol Clearinghouse as well as the overall aging of the driver population
- New president-elect that wants to end natural gas and fracking in major production markets.





# 04 Supplier Risk

Some examples are: single/sole source supplier, suppliers from one geographic location, supplier quality issues, price volatility and counterfeit products.

- Price & availability of certain PPE remains constrained.
- Seeing longer lead times on firearms/ammo from 30-90 day estimates to now 30-120+ day & in some cases no ETA due to prolonged demand spikes from COVID & political unrest. Expected into 2021-2022. Pricing of items has largely held steady B2B, but smaller vendors have gone to require up-front payment. In B2C settings, some prices are 40-60% higher than at beginning of 2020.
- China and Asia have returned to pre-Covid levels in manufacturing. Smaller to medium sized suppliers have financial strain due to Covid issues labor, cash flow slowdown, and governmental imposed restrictions on business operations.
- Uncertainty
- Some suppliers continue to deal with the labor shortages due to Covid-19 resurgence and reinstatement of increased restrictions and guidelines to combat the rise in virus cases.





## 05 Cybersecurity and Data Risk

Some examples are: cyber-attacks, data corruption, data theft, system viruses, hardware and software issues and security platform controls.

- Remote works more dangerous
- See an increase with new President.
- I have concerns about the non peaceful transition of power between presidents and the enemies of our state who will exploit that weakness.
- Frequency and number of 'hits' are increasing. Targeting the workforce personnel as a means to gain entry. Their approach and methods are becoming more sophisticated. The pandemic has forced a degree of magnitude change in the number of access points into personal and business computing systems.
- The risk just seems to tweak up every quarter
- Cybersecurity remains as an increasing threat to many businesses & industries. Working in security, our company provides cybersecurity monitoring, consulting, etc to clients & as such, may have access to data desirable to nefarious actors.
- Intrusion attempts and phishing increases all the time
- Would not be surprised if this continues or gets worse.
- Increase in cyber crimes from remote workforce.
- Prolonged exposure to work-from-home scenario & associated risks of external networks, lack of safeguards, employee errors vs increase in cyber-threats.



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## Government 06 Intervention **Risk**

Some examples are: new regulations, tariffs/trade wars and governmental restrictions on source material, methodologies or technologies.

#### Selected Comments:

- A new democratic administration is likely to be more anti-business and more excess regulation. Also depending on the final Senate outcome there is a risk of increased income taxes.
- · Government subsidies that incentivize unemployment benefits over working may provide disruption to the employee market.
- Dec and January high uncertainty with Trump administration (due to so many tariffs and many tactical changes) and likely less risk once Biden administration begin
- Our business is considered essential, but as previously stated, COVID lockdowns & forces closures for our clients will negatively impact our business.
- · Government demands for dry ice while the vaccine is being developed as well as to transport the vaccine when it's ready for distribution could cause a shortage for the frozen food product categories that rely on it for customer shipping. Parcel capacity could also be impacted if needed to distribute the vaccine.
- New president-elect with the potential for a more restrictive and regulation-filled environment.
- Threat of shut-downs and guarantines are the most significant near-term threats



#### GOVERNMENT INTERVENTION RISK 71.88



# 07 Operational Risk

Some examples are: site disasters, product counterfeiting, damage or disruption to physical assets and machine breakdown.

- Increased expenditures to keep the place, people and supply chain partners safe.
- There will be less physical human capital to do preventative maintenance on equipment.
- · Similar elevated risks due to Covid environment with fluctuating sales
- Remain at high level due to corona related labor issues/sea freight and port delays, etc
- Increase in Covid
- COVID causing issues with labor so potential shut down of operations.
- Covid uncertainties will continue to elevate the risk level
- Fall 2020 volume and sales spikes will unavoidably influence operational risk in this way.
- Supply Chain pipelines and supplier financials are stretched greatly due to Covid. Operational risks, if you are a company returning to "normal" levels, are increasing that
- Something in the supply chain will break down equipment, labor availability, logistic lanes, etc..
- Economic uncertainty





## 08 Technological or Competitive Risk

Some examples are: disruptive or replacement technologies, introduction of new competitor firms and ineffective or non-existent regulation for competitors.

#### Selected Comments:

- Insurance issues in neighboring counties will slightly decrease our competition.
- The pandemic seems to have brought about an increase in change produced by technical push, vs. consumer pull. Safety, touchless technologies, requirements for the education processes, and buying (with assurance that on-line transactions are safe and secure) are forcing change much faster than what would have happened under normal circumstances,
- We purposefully halt technological advancements and IT/IS projects in the Fall (with exceptions, of course), as to not interfere in any way with production / distribution / processing efforts to the stores during our busiest time of the year.



#### **TECHNOLOGICAL OR COMPETITIVE RISK 55.47**



## 09 Quality Risk

Some examples are: lack of sufficient quality testing, changing quality standards, informal quality control documentation, customer safety issues and product recalls.

- Covid situation so naturally possibile
- As covid worsens in Q1
- Government driven cyber security requirements are unmeetable by anyone smaller than Lockheed and I suspect they are not able to truly meet those standards.
- Remain at high level like Q4
- Company has engaged in audits starting back in Q4 to identify & rectify quality control limitations.
- Investment in consultant services to identify/reduce control vulnerabilities in processes.



# **10** Environmental Risk



Some examples are: natural disasters, extreme weather, industrial accidents and pandemics.

- · Covid deaths increased air pollution by covid spreading
- 2020 seemed to be an unusual year for hurricanes and wildfires: our best guess is 2021 will not be as extreme
- COVID.



### Appendix A Risk Index Summary

#### The Risk Index is a number between 0 – 100

Risk Index  $\leq$  49 suggests less risk Risk Index = 50 indicates no change in risk Risk Index  $\geq$  51 suggests greater risk

#### The further the number is from 50 greater the level of risk

LBRI = (P1 \* 1) + (P2 \* 0.5) + (P3 \* 0) P1 = percentage of answers reporting an improvement P2 = percentage of answers reporting no change P3 = percentage of answers reporting a deterioration



## Appendix B Survey Demographics

#### **US Region**



Industry



## Appendix B **Demographics (continued)**



#### Place of Employment



0% 10% 20% 30% 40% 50% 60% 70%



## Appendix B Demographics (continued)

#### **Company Employee Amount**



#### Work Experience

