



# ENSURING A RESILIENT ST. LOUIS

MITIGATING SUPPLY CHAIN RISK DURING COVID-19 AND BEYOND

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University of Missouri – St. Louis  
Supply Chain Risk and Resilience Research Institute



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## MITIGATING SUPPLY CHAIN RISK DURING COVID-19 AND BEYOND

The St. Louis region is a critical logistics and supply chain hub that links commerce throughout Missouri and the rest of the world by integrating all six Class I railroads, several major interstate highways, several airports, and barge traffic along the Mississippi and Missouri Rivers<sup>1</sup>. The importance of **understanding the lessons learned from COVID-19** on supply chains in Missouri has become a significant issue at the state level, as shown by the recent formation of a supply chain task force created by Governor Parson<sup>2</sup>.

The Supply Chain Risk and Resilience Research (SCR3) Institute at the University of Missouri – St. Louis investigated the **supply chain challenges faced by St. Louis businesses during the COVID-19 pandemic and the strategies implemented to prevent and mitigate supply chain disruptions**. Our overall findings indicate that St. Louis supply chains were affected in many ways, with shipment delays, demand uncertainty, and increased purchase costs being the most significant. The most prevalent resilience strategies reported were increasing collaboration internally, as well as with key customers and suppliers. Further, they were found to be the least difficult to implement and have the greatest perceived effectiveness. These findings indicate that inter-organizational supply chain relationships matter for ensuring a resilient St. Louis region.

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1 St. Louis Regional Freightway. (2021, April 13). Global connectivity.

2 Henson, R. (2022, January 22). State Supply Chain Task Force Eyes St. Louis for Solutions. KSDK-TV.

During the summer of 2022, the SCR3 Institute surveyed St. Louis supply chain professionals to understand how their firms were affected by COVID-19 and the resilience strategies they employed to sustain operations. The following report provides information associated with the survey distribution and respondent characteristics, how COVID-19 affected St. Louis supply chains, and the supply chain resilience strategies implemented in response, including their extent, difficulty, and perceived effectiveness of implementation.

We distributed an online survey through the Council of Supply Chain Management Professionals (CSCMP) St. Louis Roundtable and various regional LinkedIn Forums. Sixty-six usable responses were received. Respondents primarily worked in **the transportation/warehousing and manufacturing industries**, with almost a third in small and medium businesses. Sixty percent of the respondents held **senior managerial positions**, and 40% had **more than 20 years of work experience**. Demographic statistics can be found in Figure 1.

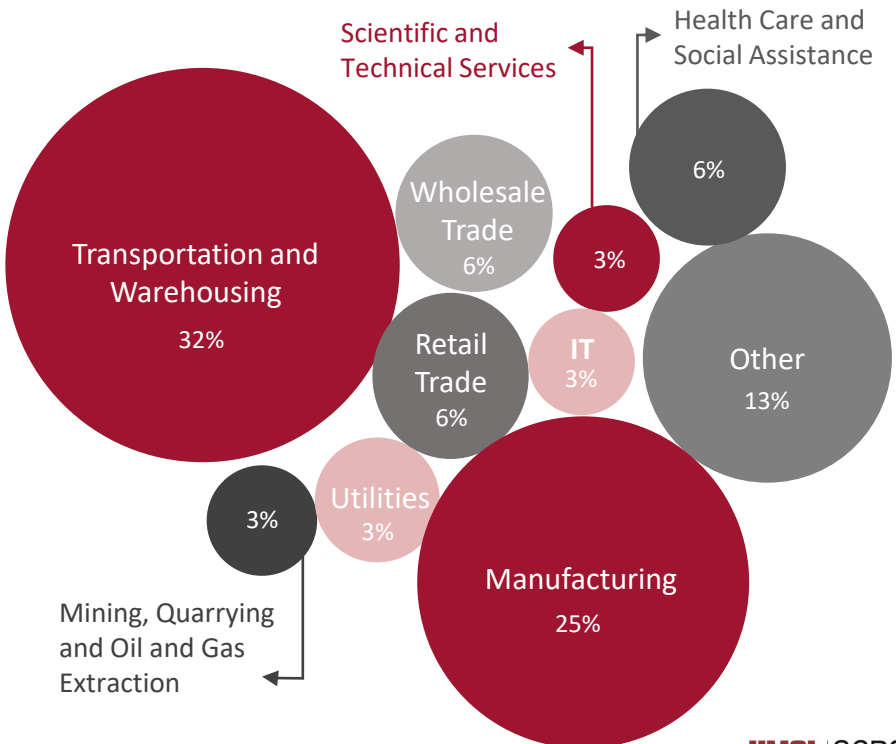


Figure 1. Distribution of Respondents by Industry Sector

## How COVID-19 Affected St. Louis Supply Chains?

We asked supply chain professionals how COVID-19 affected their firms and supply chains. The distribution of responses is provided in Figure 2.

All the disruption types included in the survey affected the St. Louis region's businesses to some extent, with **Supplier Shipment Delays, Challenges Planning and Coordinating the Supply Chain, and Increased Costs of Raw Materials** having the greatest effects. As can be seen in Figure 2, even for Loss of Customer Business, which is at the bottom of the list, 25% of managers considered it a major disruption. The results show that COVID-19 had major effects on St. Louis supply chains.

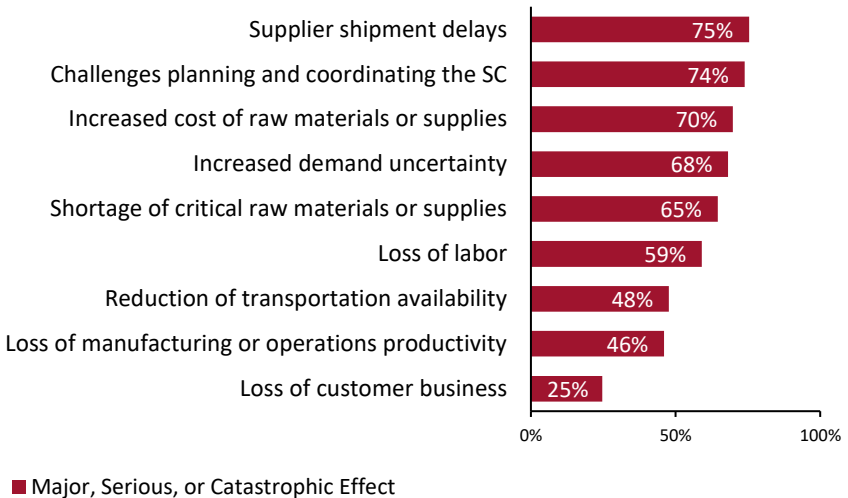


Figure 2. How COVID-19 Affected St. Louis Supply Chains?

**COVID-19 had significant effects on St. Louis supply chains:** shipment delays, planning and coordination challenges, increased costs, demand uncertainty, and shortage of raw materials stand out among the most significant effects.

## Resilience Strategy Implementation

The next section of the survey examined the extent of supply chain risk and resilience **strategy implementation in response to the COVID-19 pandemic**. Responses are provided in Figure 3.

The four supply chain risk management strategies most frequently implemented were **increased collaboration with key suppliers, increased collaboration with key customers, forward buying, and increased collaboration within the firm**. It appears that firms initially focused on working more closely within the current structures and relationships they already had in place. Strategies such as forward buying and data analytics may have been used to attain resources and information given uncertain supply sources. These findings also make sense given the most significant sources of disruption involved shipment delays, demand uncertainty and cost increases.

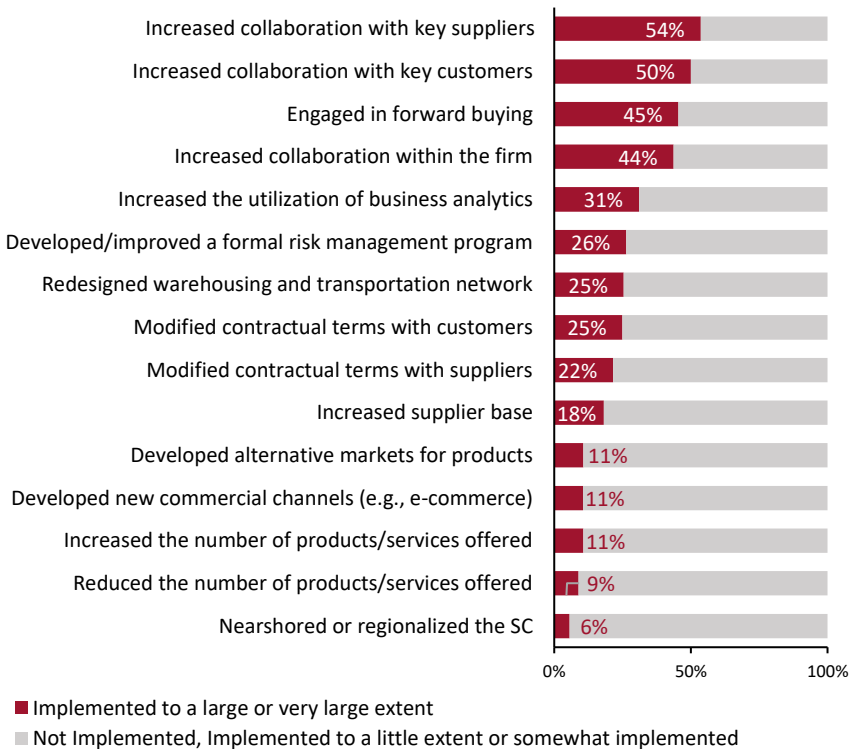


Figure 3. What strategies were implemented in response to Covid-19?

## Strategy Implementation Difficulty

Respondents were then asked to select the option that best described the **difficulty of implementing the 15 supply chain risk and resilience strategies**. As shown in Figure 4, the six strategies identified as the **most difficult to implement are related to reconfiguring supply chains and contracts**.

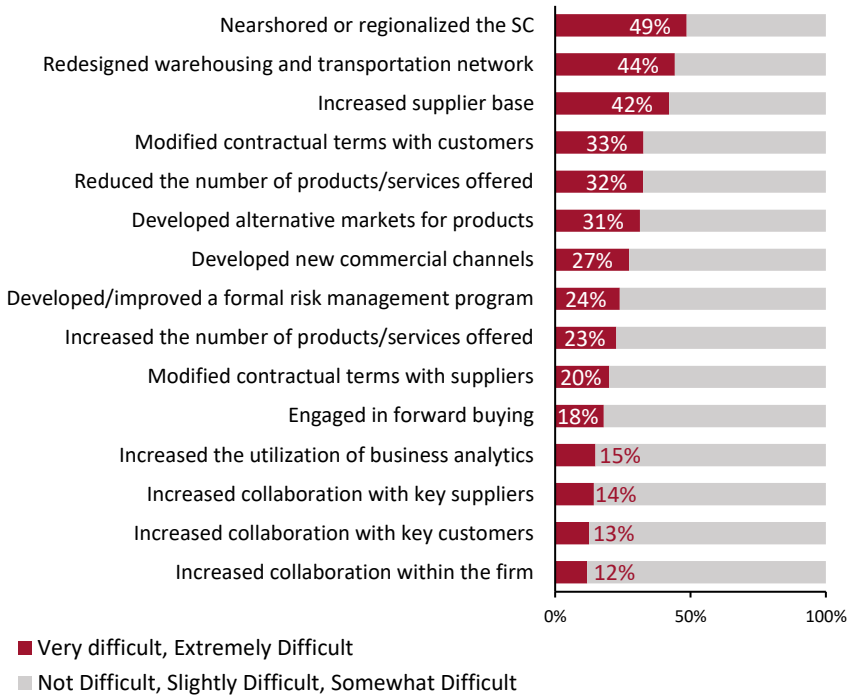


Figure 4. What was the difficulty of implementing the supply chain strategies?

Collaborative strategies were not only less difficult to implement, but were also viewed as being more effective.

## Resilience Strategy Effectiveness

In this last section of the survey, respondents were asked to select the option that best described the effectiveness of 15 supply chain risk and resilience strategies. Average scores are shown in Figure 5. The three strategies that managers found more effective were: **increased collaboration with key customers, increased collaboration within our firm, and increased collaboration with key suppliers. The survey results suggest that collaborative strategies were not only less difficult to implement, but were also viewed as being more effective.** Alternatively, strategies such as modifying contractual terms with suppliers, changing products offered and nearshoring were viewed as having limited effects. These descriptive findings lend support that strategies focusing on changing current supply chain structures may be more difficult to implement and less effective, at least in the short term in response to a disaster such as the pandemic, as compared with resolving supply chain shocks by collaborating within the current network structures.

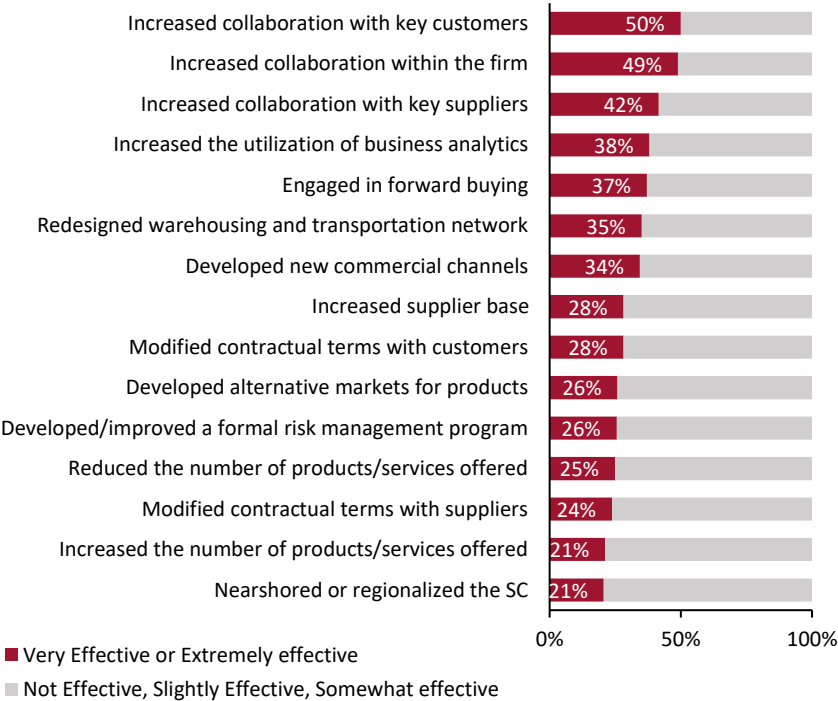


Figure 5. What was the effectiveness of the supply chain strategies?

## Conclusions

COVID-19 continues to have devastating effects on human life and pose challenges to our economy. Yet, COVID-19 also has created awareness of supply chain management to the general public due to the numerous supply chain disruptions that still plague us today. Our study found that **COVID-19 affected supply chains in a variety of ways, including shipment delays, planning and coordination challenges, and cost increases.** In response, **St. Louis firms focused on increasing collaborative efforts with customers and suppliers to overcome challenges.** During times of crisis, it may be more effective and efficient to work within the current established supply chain structures rather than to develop new structures, leading to the conclusion that relationships matter in creating a resilient St. Louis region.

It is difficult to make structural changes to the supply chain during a disaster such as the pandemic. Collaborating within your firm and supply chains may provide greater resilience.

## Acknowledgments

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