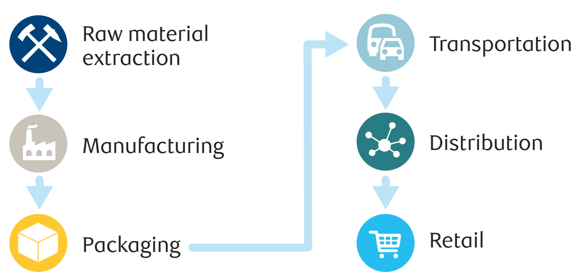
RBC Global Asset Management

Supply chain risk management in the time of COVID-19

The food we eat, the goods we buy, and the services we use on a daily basis depend upon effectively functioning supply chains. The novel coronavirus (COVID-19) has brought disruption to economies, financial markets, communities, travel, and commerce. It has also brought unprecedented disruption to global supply chains. Unlike previous supply chain disruptions, such as the 2011 Fukushima nuclear disaster or Hurricane Maria in 2017, the current crisis is unique in that supply chains are being simultaneously impacted by multiple risk factors, and the impacts are being felt in almost every region in the world.

What is supply chain risk management?

The production of a product involves many steps before it reaches its final destination:



Each of these steps may be managed internally by a company, or involve multiple levels (or tiers) of suppliers and sub-contractors. As companies seek to cut costs, and manufacturing has become more globalized, the complexity and interconnectedness of supply chains has increased, with supply chain risks present at each step.

The quality and effectiveness of a company's supply chain risk management is one factor RBC Global Asset Management's (RBC GAM) investment teams consider in their ESG integration processes. This includes consideration of issues such as: workplace safety and labour standards, product safety and quality, environmental performance, regulatory risks, raw material sourcing, size and composition of supply chains, and the location of facilities.

Key practices that strengthen the resilience of a company's supply chain risk management are:

Knowledge of supply chains

Companies should seek to map their supply chains to identify first, second, and third-tier suppliers. Through regular engagement with suppliers, companies should identify the location of facilities, the activities that occur at each facility, and all contractors and sub-contractors involved. When disruptions occur, impacts on suppliers and products can therefore be quickly identified and addressed (e.g., buying inventory, booking capacity at alternative sites).

Diversification of supply chains

Over-dependence on a single supplier or single geographic region increases the concentration of risk. Diversification of suppliers and locations enables companies to shift to alternative or back-up suppliers if a disruption affects one supplier or location. Factors that may limit the ability to diversify are: limited access to raw materials or inputs, intellectual property rights, insufficient volumes to justify multiple suppliers, or highly specialized components.

Risk management practices

A robust and effective supply chain risk function is essential for developing standards (e.g., labour practices, health and safety, environmental), identifying and assessing sources of risk, establishing mitigation strategies, and conducting scenario analysis to pin-point vulnerabilities and contingency plans. Establishing appropriate governance structures and mechanisms is critical to ensuring oversight and management of supply chain risks, as they occur.

Recent trends in supply chain management

In recent years, mounting competitive pressure and tighter margins have impelled companies to pursue a range of strategies to reduce costs and improve the efficiency of their supply chains. While companies may have achieved cost savings through trends such as offshoring, outsourcing, just-in-time delivery, and poor working conditions, these practices can also reduce supply chain resilience.

Offshoring & outsourcing

Offshoring refers to the relocation of manufacturing and other activities to lower-cost countries. These countries often provide a lower cost of labour, cheaper utilities, fewer regulations, and less onerous tax regimes. Offshored activities may be owned by the company, or outsourced to other companies through contracts and sub-contracts. As offshoring has increased, regions have become specialized in certain activities, resulting in a concentration of suppliers in certain regions.

80% of active pharmaceutical ingredients are manufactured in China.[1]

Just-in-time delivery

To reduce the cost of holding and storing inventory, companies have utilized advanced technology and transportation networks to fill customer orders just-in-time. To reduce the number of days inventory is held in stock requires the ability to accurately forecast demand, and is highly dependent upon a rapid and responsive supply chain. The automotive, consumer retail, and technology sectors are well known for using just-in-time delivery.

Apple hardware only sits in a warehouse for **5 days** before shipping to customers.[2]

Multi-tier supply chains

Product supply chains often involve multiple industries, geographies, and suppliers or sub-contractors, resulting in complex and interconnected supply chains that are often opaque and difficult to untangle. Most companies are only able to identify their direct (tier 1) suppliers.

Over **60%** of procurement officers have no knowledge of their supply chain beyond the first tier.[3]

Workplace conditions

The combination of cost reduction, increased competition, offshoring, and outsourcing has increased the social risks within supply chains. Violations of human rights (e.g., child labour, forced labour), poor workplace health and safety, environmental contamination, and corruption are of increasing concern. Over the past several years, governments have implemented regulations requiring companies to verify and disclose labour practices within their supply chains.

According to global estimates, **152 million children** are in child labour and **25 million adults** and children are in forced labour within global supply chains.[4]

[1] Pharma Sector: 80 per cent APIs via Chinese imports despite similar making costs, June 2018, The Indian express
[2] Apple turns over entire inventory in five days, May 31, 2012, Apple Insider
[3] 2019 Global CPO Survey, 2019, Deloitte
[4] Ending child labour, forced labour and human trafficking in global supply chains, November 12, 2019, International Labour Organization (ILO), Organisation for Economic Co-operation and Development (OECD) International Organization for Migration (IOM) United Nations Children's Fund (UNICEF)

Impact of COVID-19 on global supply chains

Since COVID-19 was first identified in late December 2019, borders have been closed, global travel has been suspended, and over 1.7 billion people (~20% of the world's population)[5] have been placed under lockdown. Factories and transportation hubs have been closed, new safety protocols implemented, the movement of employees restricted, and customer needs and demands have changed. No region or industry has been immune to these effects.

Impacts from COVID-19	Sector or industry impact example
Supply shocks due to lockdowns and factory closures, as well as trade restrictions. Affects the ability to source and distribute goods and services.	The halting of production in China reduced the output of many essential components for global supply chains. One such product is active pharmaceutical ingredients, 80% of which come from China. In 2018, the U.S. imported 95% of its ibuprofen, 91% of its hydrocortisone, and 70% of its acetaminophen from China. As a result of factory shutdowns, the U.S. Food and Drug Administration warned of potential drug shortages due to supply chain disruptions.[6]
Capacity limitations as companies face both increased demand and reduced supply for some goods, depleting inventory and straining production capacity.	Retail grocery stores typically carry 20-30 days of inventory, but have faced inventory shortages as demand for some food and consumer goods has surged by 500%.[7] Producers have been working to increase supply, but have only so much capacity. Grocery chains have reduced hours to provide time for re-stocking, while food processors are extending hours and only producing limited product lines to increase capacity and efficiency.
Demand shocks are driven by lockdowns and changing consumer purchasing habits, which are exacerbated by supply shocks and capacity limitations.	A rapid and unanticipated increase in demand for toilet paper has resulted in empty shelves as producers and retailers rush to re-stock. With lockdowns and an increase in working from home, daily home use of toilet paper is estimated to have increased by 40%.[8] As demand for retail toilet paper has gone up, demand for the commercial product has decreased. Both the increase in demand, and shift in product type has resulted in temporary product shortages that have fed panic buying.
Worker health and safety is of primary concern to companies and workers. Lack of personal protective equipment, poor job security, lack of sick pay, and/or access to health care all contribute to the current crisis.	Agriculture and food production depends on both temporary and foreign workers to manage the seasonal nature of the industry. An estimated 60,000 seasonal foreign workers arrive annually in Canada[9], and 3 million in the U.S.[10] Travel restrictions, increased risk of infections due to tight living conditions, lack of protective equipment and difficulty accessing health care, especially in the U.S., is impacting the ability of farms and food processors to operate. The scale of the impact will only become evident as the growing season progresses.

5 Around 20% of global population under coronavirus lock down, March 24, 2002, The Guardian
6 Coronavirus supply chain update, February 27, 2020, Food and Drug Administration
7 Demand for some food and consumer goods surges by 500% as Canadians stock up, April 2, 2020, The National Post
8 Coronavirus and shopping for supplies: Getting to the bottom of the toilet paper shortage, USA Today, April 8, 2020
9 Ontario farmers say foreign worker exemptions for COVID-19 are in the works, March 20, 2020, CBC
10 Farmworker health factsheet, 2012, National Centre for Farmworker Health
11 COVID-19: Managing supply chain risk and disruption, April 2020

How will supply chain risk management change as a result of COVID-19?

Companies are continually reviewing and revising their supply chain management practices to optimize performance. While the attention and focus is (rightfully) on managing the immediate needs of the current crisis, the COVID-19 pandemic has exposed vulnerabilities in global supply chains. Once the crisis has passed, this experience may lead companies to increase their focus on:

- **Digital solutions:** Shifting workforces to working remotely, managing supplier relationships from a distance, and verifying data and contracts digitally is increasingly relevant. While some companies' supply chain management systems may be automated, others are still highly dependent on manual processes for onboarding, verifying product quality, producing bills of lading and more. While the cost of replacing legacy systems may be high, following COVID-19, the re-evaluation and re-prioritization of digital solutions is expected to increase.[11] Along with digitization, issues of data privacy and security are more important than ever, as they increase the possibility of fraud and cyber-attacks. Here, blockchain may offer a solution as it provides a digital ledger that can provide a secure method of verifying and validating data.[12]
- **Supplier mapping and diversification:** The extent of supply chain disruption that has occurred, and will likely continue for some time, has highlighted the importance of being able to identify suppliers, shift production to alternative locations, and onboard new suppliers as necessary. It remains to be seen how or if global supply chains will shift away from their reliance on China as a manufacturing hub.
- **Supplier contracts:** As suppliers struggle to meet contractual obligations due to lockdowns, mandated business closures, workforce shortages, and trade restrictions, terms of contract and liabilities are being closely scrutinized. Force majeure clauses typically state the conditions under which a company's lack of performance may be excused. Whether force majeure applies to COVID-19 will depend on the exact wording within contracts, which can vary significantly.[13]
- **Workforce management:** The ability of companies to navigate through these challenging times is closely tied to the quality of their management, and the effectiveness of their business continuity, risk management, and workforce management protocols. The global pandemic is shining a light on how companies manage the health and safety of their employees, their labour practices and standards, and their ability to operate despite restrictions and limitations that affect their workforce. These issues will continue to be important through the pandemic and beyond.

At RBC Global Asset Management (RBC GAM), every investment team evaluates ESG factors, including supply chain risk management, as part of their investment decision-making process. We also convey our views through thoughtful proxy proxy voting, and engagement with issuers. We believe that being an active, engaged and responsible owner empowers us to enhance the long-term, risk-adjusted performance of our portfolios and is part of our fiduciary duty.

[12] Supply chains have been upended. Here's how to make them more resilient, April 6, 2020,World Economic Forum
[13] COVID-19 and force majeure clauses: key considerations, implications, and practice tips, March 11, 2020, Torys LLP

For more information, see Our Approach to Responsible Investment.

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