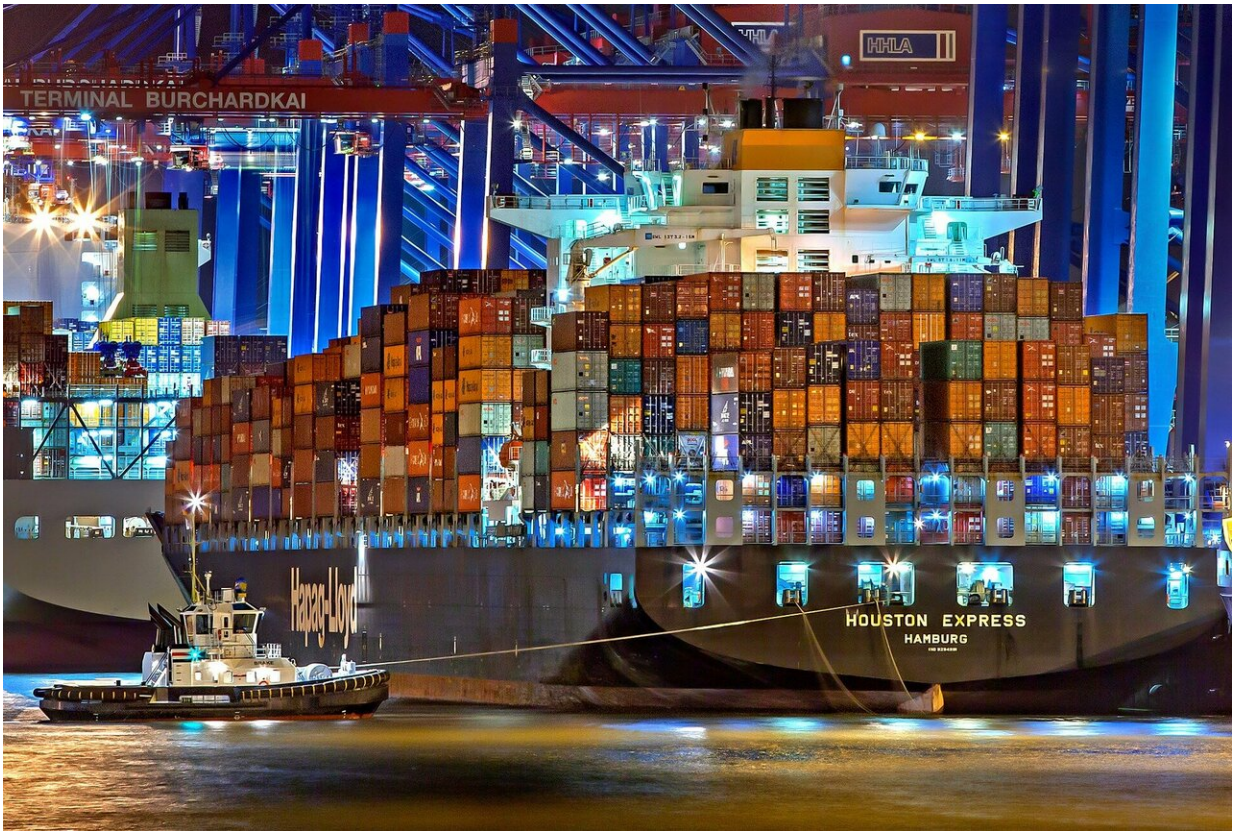


# The coronavirus and its impact on global supply chains

February 18 2020, by Benny Mantin

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Coronavirus is quite rightfully receiving ample attention from healthcare perspective. One less discussed aspect is its potential effect on global supply chains.

Supply chains are becoming increasingly complex and intertwined. To improve efficiency and gain greater return to scale, firms along the supply chains specialize in ever-finer parts of the entire process. This leads to two major outcomes. First, it is not uncommon for supply chains to have six tiers or more. Consider for example, the apparel industry. For one garment, the process embeds multiple steps, such as fiber production, spinning of the fiber, weaving, dyeing, cutting, sewing, and finishing of the garment. Keeping in mind that other parts of the garment (buttons, zippers) are often produced by other suppliers and that distribution and logistics engage even more players in this complex network of goods delivery to customers. In other industries, such as automotive, electronics, and aerospace, the products are far more complex resulting with even longer supply chains.

Second, firms—who now have developed expertise in very specialized parts of the production process—play a role in simultaneously providing components to numerous companies that ultimately interact with end consumers. That is, if in the past one could have envisioned a supply chain being a pyramid where the base of the pyramid corresponds to all raw material suppliers and the top of the pyramid is the consumer, now supply chains are so intertwined that one can only imagine a large lattice, or a fisherman net where, on one side you have many suppliers, on the other side you have the consumers, and in-between you have endless chains of interactions between them.

## **Loss of visibility and transparency due to high complexity**

Given this complexity, firms totally lose visibility and transparency into their own supply chains. Global shocks illustrate this very well. Take the 2011 flood in Thailand. Although it has attracted only limited attention in the global media, it had long lasting supply chain effects. The

magnitude of the effects has reduced the global supply of hard drives by about 30% well into 2012 and caused companies like Honda to cut production around the world due to component shortages. It was only then, when some companies have realized that many of their components were sourced, one way or another, from Thailand.

China is a far larger player in the global economy. It is hard to think of many goods that do not pass through this major economy. With its increased sophistication and [advanced manufacturing](#), more and more components are produced in China. With entangled and complex supply chains, closure of facilities in China will have far-reaching consequences. Lean supply chains are also quite fragile. The disruption in China will immediately affect lean supply chains and in particular those based on speed—think airplanes. Longer, and especially slower (think container ship), supply chains will not feel the impact immediately as shortages down the supply chain will take weeks to emerge.

To demonstrate the issues of supply chain complexity and transparency, sourcing and supplier managers need to figure out what companies operate in and around Wuhan and then ask themselves: is any of these companies a supplier of one of the components in my supply chain? The answer in most cases would be "I don't know" and only time can provide answers.

In the case of the coronavirus, there is another level of impact: movement of employees. Since the effect took place right during the Chinese New Year, many employees who work at other manufacturing hubs such as Guangdong and Shenzhen actually live in Wuhan or any of the other quarantined areas. They cannot go back to work at the moment. As a result, manufacturing is slowing down elsewhere in China, with far reaching consequences.

Impacts of this disruption are being already felt. Some companies are closing or slowing down their operations in China, at least temporarily, like General Motors, Toyota and Volkswagen. Effects are not limited to China though. Firms worldwide start feeling the broader effects. For instance, Hyundai was the first automotive firm outside of China to halt production due to components shortages.

## **Rethinking supply chain practices and policies**

The coronavirus could be the Black Swan of our generation. The duration of the disruption will determine what comes next. In the race for the looming Brexit, some companies have choked up the pipelines with inventories. Those companies can cruise the disruption relatively easily (so thanks Brexit?). If the virus spread will subside in the coming weeks, then all is likely to go back to normal. However, a longer disruption will result with severe shortages, price hikes, and firms will start rethinking their supply chains. This is a slow, long-term strategic process, but clearly, companies around the globe will more seriously consider their supply chain practices and policies, will seek to enhance the level of transparency. Among other things, they might reconsider concepts such as how they embrace lean manufacturing, dual sourcing, and [supply chain](#) resilience.

Provided by University of Luxembourg

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