

# Group of Twenty (G20)

Tackling supply chain vulnerabilities and global trade resilience



<b>Forum</b>	Group of twenty (G20)
<b>Issue:</b>	Tackling supply chain vulnerabilities and global trade resilience
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## Introduction

“Tackling supply chain vulnerabilities and global trade resilience” is a pressing and complex issue. Especially in a time when we are so dependent on global supply chains, it is of utmost importance to ensure that they function as efficiently and smoothly as possible. How to combat the need to save (financial) resources on every step of the way that big corporations have? Are worker’s rights currently being respected? Can our global trade system afford to depend on vulnerable supply chains for much more time? These as well as other hindrances and dangers to the current system will be explored in this report.

## Definition of Key Terms

### Supply chain

A supply chain is a network of individuals and companies that are often involved in distributing a product to the consumer. Creation of products is often part of the supply chain, but not necessarily.

### Global trade resilience

The ability of the global trade system to both resist disruptions to international trade and recover after disruptions occur.

### Just in time manufacturing

A production model in which items are created to meet demand, not created in surplus or in advance of need. This is often used to minimise the time (raw) materials are in the inventory to reduce cost.

### Trade war

A situation in which countries try to damage each other's trade, typically by the imposition of tariffs or quota restrictions.



## General Overview

### Interdependence

At the core, this issue is an issue about how interconnected, and thus how dependent the nations of today's world have become. In the last years we have had to face many incidents where our trade resilience was challenged due to big crises. Whether it is the war in Ukraine that led to inflation, shortages in gas, oil, or crops like grain, or it is the COVID-19 virus, that has impacted global trade like nothing in recent history. The world has still not fully recovered from these punches to our economy, so how can we mitigate the impact of global crises, armed conflicts and more? Is there a way to remain interconnected, but not to suffer together?

### Economic Global Networks

Economic Global networks nowadays are extremely complex. Products travel a long and convoluted way before they arrive in a consumer's hands. Not only civilians, but governments and companies rely on different regions for better or less expensive resources. Global networks are paramount to our economy, and that we have only been able to develop and work together through these networks. It is of utmost importance to keep improving our world-wide bonds, by finding areas in which we can work closer together, but also finding weak links in the current system and figure out how to strengthen them.

At this point in time, our supply chains consist of many steps. On their website, Apple proudly states: "Designed by Apple in California, made by people everywhere". This dreamy slogan indicates that your iPhone has travelled a long way, before it landed into your local Apple-store. It has seen the hands of workers in China, it has gone through Japan, and South-Korea, and some finishing touches might have been applied in the United States.

There are certainly advantages to global networks. They lower cost, as they allow us to source valuable materials, such as titanium, platinum, or other important materials such as cotton or wool, and to sell these materials to each other. These networks also allow different regions to specialise in certain aspects of production. The Netherlands, for example, are a leading developer of agricultural techniques and technologies, while a country like India might implement these advances to grow more crops. Germany designs wonderful cars, and Japan makes the best parts.

However, global networks also come with significant vulnerabilities. The interconnected nature of supply chains means that disruptions in one area can have cascading effects globally. For instance, a natural disaster in Japan can halt the production of essential automotive parts, affecting



other car manufacturers worldwide. Political instability or conflict might also drastically harm the entire supply chain. A vivid example was the Red Sea crisis in 2023-2024. During this crisis, the Houthis carried out over 60 attacks on cargo vessels and oil tankers passing through the Red Sea. As a result, many ships had to take a longer route, all the way around Cape Town, in order to get to Europe. The global economy had experienced a 0.4% decrease in growth, and inflation had skyrocketed with a 0.5% increase on average.

### *Just-in-Time manufacturing*

Just-in-Time (JIT) manufacturing is a strategy implemented by companies to reduce costs as much as possible, by only buying the necessary raw materials when required, so that no extra space (and consequently money) needs to be used to keep these materials. Although JIT manufacturing is cost effective, it presents some problems. Its reliance on timely supply deliveries makes it susceptible to disruptions in the supply chain: any delay can halt production, leading to potential losses. Sudden changes in demand can be challenging to manage with minimal inventory buffers. The success of JIT depends heavily on the reliability and consistency of suppliers, for any issues with supply quality or timing can impact the entire production process. In case a big competitor in a sector goes out of business. This puts a heavy load on the rest of the sector to overtake their production and clients. Due to JIT manufacturing, this transition may not go smoothly or quickly.

### **Natural disasters**

Apart from geopolitics, many other factors might influence the strength of supply chains. Among these other factors, natural disasters are likely the most prominent. Natural disasters can affect supply chains in two main manners: firstly, because of these disasters important trade routes might get disrupted. An earthquake, for instance, can heavily damage important roads or passageways. Secondly, natural disasters can impact working conditions. This means that either big factories, warehouses, industrial power plants or even the workers' houses get destroyed, which in turn leads to slower production. The Tohoku earthquake and the tsunami following it in Japan, which happened in 2011 not only resulted in the deaths of nearly 20,000 people, but also had severe economic consequences. The Japanese production and export in nearly every industry plummeted by a few percent. Much fewer cars were made and exported, which led to shortages in the world. Luckily, the world has been able to recover from this and Japan too has come back from this pushback. However, it is extremely important to be prepared for similar disasters in the future. Another infamous example is the eruption of the Eyjafjallajökull volcano in 2010 in Iceland. This eruption had prevented air travel over Iceland for weeks. Due to the implementation of this measure, the supply chain was once again disrupted, because many aviation routes were blocked



off. One more concrete example comes from Thailand: in 2011, after a flood, many industrial zones were submerged in water. This caused a global shortage of hard disk drives.

Natural disasters also often lead to a spike in demand for certain goods, such as building materials, emergency supplies, and food, which further strains the supply chain. Suppliers may struggle to meet this sudden increase in demand while dealing with their own operational disruptions. Additionally, companies might face increased costs as they resort to expedited shipping or alternative suppliers to mitigate delays.

### Health crises

The COVID-19 pandemic also starkly demonstrated our vulnerability towards global health crises, granted, this situation was extremely rare and disrupted many links in the chain at once. However, does that not make it more important to figure out how to deal with crises alike?

The first problem that a big health crisis presents are labour shortages. During the COVID-19 pandemic, various factories all throughout the world had to comply with government regulations and respect measures such as social distancing. This led to work being carried out inefficiently and it had the long lasting effects of shortages in nearly every sector, and of course rampantly growing inflation. But not only was labour carried out less efficiently. Oftentimes, no labour could be done at all, since the workers were at home in quarantine or in lockdown.

Another restriction faced was difficulties with transportation. Normal transportation became harder and harder, due to strict restrictions and regulations regarding transportation. However, even the distribution of COVID test kits did not always go well, often due to generally bad infrastructure. This is not a problem specifically relevant in regard to health crises, but it does show that during a crisis, at the time when acute action is most necessary, our infrastructure often seems to fail us.

Another problem that we have seen earlier is that crises of any kind call for a shift in demand. During COVID, hospitals needed much more supplies, which of course never seemed to be delivered on time. Everybody needed masks and vaccines, yet still in some cases people had to wait for hours to get a vaccination. All of this shows that our supply chains, partly due to JIT manufacturing, are susceptible to shifts in demand. It seems like every time a disaster strikes, our whole economy has to restructure to meet the needs the disaster has caused. This is a slow process in times when quick action is of utmost importance.



## Trade wars

Trade wars between countries are mostly caused by geopolitical disputes and protectionism. The biggest problem trade wars cause is the uncertainty they bring into our trade system. If a country decides to raise import taxes, supplying to this country becomes more expensive, which weakens the chain. In response, big companies might simply reconfigure their supply chains, which takes up much time. The most obvious example of a long term trade war is the one between China and the United States of America. This trade war is a big reason that many companies relocate from China to other countries, often in Southeast Asia, to lower their tariffs. This has cost the companies and consumers a lot of money. And although companies moving out of China might not be perceived as a bad occurrence, it still hurts supply chains and shows the need for a reliable chain.



## Major Parties Involved

### World Trade Organization (WTO)

The WTO plays a crucial role in facilitating international trade cooperation, setting global trade standards, and resolving trade disputes. Its efforts to promote open and fair trade practices help enhance supply chain resilience by ensuring smooth international trade flows.

### United States of America

The United States Government, or more specifically the U.S. Department of Commerce works on policies to support domestic manufacturing, secure critical supply chains, and foster international trade partnerships. Its initiatives aim to mitigate supply chain risks and improve resilience against disruptions. As mentioned earlier, the United States is a major leader in the worldwide economy and often dictates how supply chains will end up looking.

### United Nations Conference on Trade and Development (UNCTAD)

UNCTAD is a UN organisation that focuses on trade, investment, and development issues. It provides analysis, policy recommendations, and technical assistance to countries, helping them build resilient supply chain

### China

China has been a lead manufacturer for decades. The Chinese government has great amounts of influence and economical bargaining power, due to its function at the start of supply chains.



## Timeline of Key Events

This issue does not know many key events, but rather key situations. Of course there are events like earthquakes, but there are also longer happenings, such as Brexit.

<b>Date</b>	<b>Description of event</b>
March 11th 2011	Tohoku earthquake
July 2011	Floods in Thailand
2016 - 2020	Brexit
January 2017-present	US-China trade war

## UN involvement, Relevant Resolutions, Treaties and Events

- Sendai Framework for Disaster Risk Reduction 2015-2030, 18 March 2015 (A/CONF.224/CRP.1)

This agreement has been adopted by the United Nations in order to enhance resilience to natural and man made hazards. It builds up disaster preparedness for effective response to these types of dangers.

- Resolution on International Trade and Development, 5 December 2014 (A/RES/69/205)

This resolution focuses mainly on equality within the global economic system. It calls for an equitable market and highlights the need for participation of lower developed economies in global trade.

- Resolution on Global Supply Chains and Employment, 14 June 2016 (A/RES/70/212)

This resolution, as suggested by the name, calls for safe employment within the global supply chains, as these are known to diminish rightful treatment of workers at the start of the chains. The resolution urges governments and businesses to work together to ensure decent employment accessibility and safe working conditions.





## Previous Attempts to solve the Issue

### Trade agreements

Trade agreements or EPAs such as CETA, NAFTA etc. have been effective mostly due to the fact that they lower tariffs and create consistency and predictability from trade partners. A group of countries can agree to accept each other as trade partners and agree to legislation to enhance economic relations. For instance, a trade agreement with the EU would benefit African nations greatly, as they now have a big and secure market for their export. Because of trade agreements, there is more specialisation and more efficient and cheap manufacturing. However, trade agreements can go against (national) norms established by one of the partners. In the US, for example, food grading norms are less strict than in the EU. This can lead to long negotiation and disagreement. Furthermore, trade agreements are often made with countries that already have good relations. This solves little of the geopolitical tensions between countries with less friendly relations.

### Disaster preparedness

Effective disaster preparedness not only benefits individuals, but it also ensures that supply chains can keep functioning, even though one link might weaken. While countries like Japan put a lot of money and resources towards preparing for natural disasters, China still has thousands of wet markets. They are still very popular, and it would be expensive to shut them down. The UN has put lots of effort into disaster preparedness with subsidies and legislation, however, it does not seem to be very effective, as highlighted by the example of Chinese wet markets.



## Possible Solutions

### JIT manufacturing and disaster preparedness

JIT manufacturing has been among the biggest reasons that disasters have such a lasting and big impact. Our chains work in a way that everything gets provided at the last moment, in order to waste as little space as possible. If companies received subsidies, or were urged by law to keep some amount of raw materials or components reserved at all times, these companies would feel a cushioned impact from disasters. The chain can still go on with the product already in stock. This is however extremely expensive and legislation like this could get severe pushback.

### Diversification

Companies that receive their materials from various, diverse sources are less prone to performing badly when one supplier falls out. Again, this would probably need to be enforced by law or financial support, which is not always the most preferable course of action. But it would drastically improve trade resilience worldwide.

### Chain lengths

It is also true that smaller chains are generally affected less by a cascading effect, started in one link. It would be better to paint and sew jeans at the same location. There might be some risk in doing more at one location, but this way, if one gear in the process malfunctions, there will not be a big machine falling down all at once. A possible risk with such a structure is that if disaster strikes at an important location, where a big part of the process takes place, an equally big part of the process will slow down.



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