Florida High Schools Model United Nations

FHSMUN GULF COAST 11

ECONOMIC AND FINANCIAL COMMITTEE

RESPONDING TO GLOBAL SUPPLY CHAIN SHORTAGES

Authors: Samuel Zhu, Jack Ham, Rohit Paranjape

December 2025

History and Brief Background

Although the term "supply chain" is relatively modern, the concept has existed for centuries. Early civilizations developed long distance trade networks to exchange goods, raw materials, and ideas. The Silk Road, trans Saharan trade routes, and Indian Ocean commerce created early interdependent commercial systems[1]. From the seventeenth to the eighteenth century, structured networks of trade further developed. The global rum trade moved enslaved labor into the Caribbean to produce sugar, shipped molasses to North America, and then exported rum to Europe[1]. This reveals one of the early examples of multi-stage global supply processes and reliance on human labor exploitation[1].

The Industrial Revolution changed the lot of supply systems with mechanization, expansion of railway networks, steam-powered shipping, and factory concentration[2]. These developments decreased transport costs and increased scales of trade[2]. In the twentieth century, containerization standardized global freight and dramatically improved efficiency, helping ports in Asia grow into international trade hubs[2]. Digital logistics tools later improved inventory and freight management.

The term "supply chain management" was coined in 1982, reflecting increasingly formal oversight of international sourcing and logistics[3]. Globalization in the late twentieth and early twenty-first century encouraged firms to outsource production and build complex international supplier networks supported by digital platforms[3]. The COVID 19 pandemic exposed weaknesses in the systems as lockdowns, labor shortages, and factory shutdowns disrupted medical supplies, electronics, and consumer goods[4]. Governments and private firms reconsidered single region sourcing and moved to diversify and develop resilience strategies[4]. This historical perspective illustrates that supply chains have always evolved in response to technological, political, and social change. Understanding this evolution helps policymakers design systems capable of withstanding future disruptions.

Current Issues with Supply Chains

Modern supply chains are at risk from geopolitical conflict, climate risks, technological transition, economic inequality, and a lack of transparency. Geopolitical tensions remain a major threat. Trade restrictions, sanctions, and political instability disrupt shipping lanes and limit access to the critical materials[5]. Surveys note that geopolitics raises delays and uncertainty among exporters[5]. Semiconductor and technology sectors are particularly vulnerable[5]. Further, climate change increasingly affects world commerce. Extreme weather events destroy

---

[1] World Bank. *Africa's Pulse: Economic Update for Sub-Saharan Africa*. Washington, D.C.: World Bank Group, 2023.

[2] International Monetary Fund. *Regional Economic Outlook: Sub-Saharan Africa – Navigating Divergent Recoveries*. Washington, D.C.: IMF Publications, 2022.

[3] Brautigam, Deborah. *The Dragon's Gift: The Real Story of China in Africa*. New York: Oxford University Press, 2009.

[4] United States Agency for International Development (USAID). "Prosper Africa: Fact Sheet." USAID.gov. 2023.

[5] European Commission. "Global Gateway: A Europe-Africa Investment Package." Brussels: EU External Action Service, 2022.

infrastructure, delay shipping, and disrupt agricultural and manufacturing output[3]. The rise in sea levels and exposure to storms threatens major coastal shipping centers[3]. According to analysts, disruptions will be more common, increasing the long-term risk[3].

Technology is reshaping logistics: artificial intelligence, automated warehouses, real-time shipment tracking, and predictive analytics improve efficiency and accuracy[3]. Yet, the digital divide has created inequality, and cybersecurity threats add new vulnerabilities[3]. It affects the global production networks since economic inequalities make developing regions, where manufacturing often occurs, more vulnerable to such disruptions because of their generally reduced financial resources, weaker labor protections, and access to advanced technologies[4]. Small suppliers are not able to survive after a prolonged interruption[4].

Transparency issues remain. Most of the multilevel suppliers do not offer much scope for the visibility of information, resulting in fraud, labour issues, and vulnerabilities in supply[5]. Companies cannot identify risks early without knowing who the upstream suppliers are[5]. The COVID 19 pandemic continues to influence restructuring: companies increasingly use a variety of locations for sourcing, maintain larger inventory buffers and consider reshoring or near shoring[4]. This shift represents a transition from an exclusively efficiency-based model towards one of resilience-driven strategy[4]. Improving digital infrastructure, enhancing transparency standards, promoting ethical labor practices, strengthening climate-resilient logistics systems, and supporting diversified sourcing strategies are all important in addressing these challenges for the ECOFIN delegates. Strong supply networks underpin economic security and global development.

Modern Developments and Their Impact on Supply Chains

In today's modern era, the landscape of global supply chains grows increasingly complex. While only happening recently, the surge in the advancement and implementation of Artificial Intelligence (AI) has had great effects on supply chains worldwide. A primary application of AI in supply chains comes in the processing of large amounts of data. AI has the ability to "...work behind the scenes to pore over big data using algorithms and predictive methods so supply chain users can make fast, data-driven decisions…"[6] Additionally, a subset of Artificial Intelligence known as Generative AI (GenAI) has extensive applications across supply chain logistics including ensuring compliance, streamlining manufacturing workflows, and allowing for virtual communication.[7] GenAI's ability to not only make decisions but learn as they progress makes it an invaluable tool for the modernization of supply chains across the globe, as a constantly adapting efficiency guarantor fits perfectly in today's ever changing technological and logistical

[6] "Supply Chain Innovation and Trends | Microsoft Dynamics 365." *Microsoft.com*, 2020, www.microsoft.com/en-us/dynamics-365/topics/supply-chain-management/supply-chain-technology-innovation-trends.

[7]KPMG. "Supply Chain Trends 2024: The Digital Shake-Up." *KPMG*, 2024, kpmg.com/xx/en/our-insights/ai-and-technology/supply-chain-trends-2024.html.

landscape. Overall, the advent of artificial intelligence and its rapid advancement is an extremely important aspect for delegates to consider when considering solutions to mitigating the impact of supply chain disruptions. GenAI and other forms can have the capacity to respond quickly, and adapt in accordance.

Artificial intelligence is not the only modern development that has had impacts on supply chain logistics. As a whole, supply chains of today have found themselves being increasingly digitized. Digitally based supply chains have the added benefit of being able to "...leverage advanced technologies…to create interconnected and intelligent networks."[8] While AI does play a big part in the creation of a digitized supply chain, other new technology such as blockchain technology strengthens transparency and security.[3] Digitized supply chains can overall contribute to greater efficiency as well as a reduction in costs.

Furthermore, new technology has greatly impacted supply chain logistics in the form of advancements in robotics and automation. Increasingly, robots and automated machines are being used in manufacturing, as well as in warehouses and distribution centers. This has led to much greater efficiency and speed in meeting demands of both consumers and national imports and exports. Automation doesn't only come in the form of physical robots. Automation software can process data and send invoices, records, and tracking information, which all lead to ease of transportation and greater transparency.

With all of this being said, it is important to understand why this is important. Modern technology has been an immense boon for the industry of supply chains, and delegates should consider these impacts when navigating said industry and possible methods of improving it. However, with this added asset comes a plethora of increased possibilities for disruptions. In the past, disruptions have been left to physical conflict, errors, and natural causes. However the integration of technology into every facet of a supply chain opens the door into the world of cybersecurity and cyber attacks. For example, the cyber-espionage group known as Dragonfly has allegedly targeted supply chains across North America and Europe.[9] So, in summary, new technologies and their implementation into supply chains poses many great benefits and opportunities for security, but just as many risks and potential threats, a balance that delegates must consider.

Past Actions and Current Proposals

International free trade has been argued to be a fundamental necessity for a well functioning supply chain. Most of these arguments originate with Adam Smith's argument in favor of the division of labor. Where the complex process of creating a product is split in different stages with one country, in this case, specializing in a single

---

[8] Shelley, Sarah. "Navigating the Digital Age: The Role of Technology in Supply Chain Management." *Www.ucumberlands.edu*, 24 June 2024, www.ucumberlands.edu/blog/the-role-of-technology-in-supply-chain-management.

[9] "Third Party Software Providers." *Www.ncsc.gov.uk*, www.ncsc.gov.uk/collection/supply-chain-security/third-party-software-providers.

stage of production. It's because of this concept that most supply chains encompass the globe, most importantly, global value chains where stages of production are spread across multiple countries. It's through this process where raw goods become intermediate goods, and intermediate goods become the final high value goods. This process makes up the majority of trade, and is what supply chains rely on in order to function as efficiently as possible.[10]

The modern history of international trade began during the aftermath of World War Two and the Bretton Woods Conference in 1947. The Bretton Woods Conference helped set up the post - war world economy, and it recommended the creation of the World Bank, the International Monetary Fund, and a potential International Trade Organization (ITO). The ITO would not survive continued negotiations, but the General Agreement on Tariffs and Trade (GATT) was successfully negotiated by the participants. Under GATT many of the world's largest economies implemented reciprocal reductions in tariffs allowing for the free flow of goods.[11]

According to the WTO, world trade volume has increased by 44 times since 1950 the early days of the GATT agreement. The most monumental action in the history of international trade was the formation of the World Trade Organization (WTO) in 1995.[12] The WTO not only has decreased any barrier to international trade, such as tariffs, but created a dispute mechanism and regulates domestic economic policy. Since then, world trade has expanded on average 4% to 5% every year according to the WTO.

It's precisely because of the growth of international free trade that supply chains have expanded onto the global stage.[13] Businesses have an incentive to import cheap intermediate and raw goods from other countries to their respective home countries in order to manufacture them into the final goods. This creates complex multi - step, multi - country supply chains that are much more resilient than compared to the past. As supply chains are not reliant on a single producer, meaning that trade is always able to adapt to minor disputes, albeit sometimes slowly.

Reforming for the Future

The main problem facing free trade agreements is whether or not countries actually follow through with those agreements, and whether or not countries actually negotiate a deal. Much of international trade law must toe the line of having enough power to enforce trade law, but be agreeable enough for countries to willingly give up

---

[10] UNCTAD. 2013. "80% of Trade Takes Place in 'Value Chains' Linked to Transnational Corporations, UNCTAD Report Says | UNCTAD." Unctad.org. February 27, 2013. https://unctad.org/press-material/80-trade-takes-place-value-chains-linked-transnational-corporations-unctad-report.
[11] Georgetown Law Library. 2024. "Guides: International Trade Law Research Guide: From GATT to the WTO: An Overview." Georgetown.edu. November 5, 2024. https://guides.ll.georgetown.edu/c.php?g=363556&p=4108235.
[12] World Trade Organization. 2023. "Evolution of Trade under the WTO: Handy Statistics." Www.wto.org. 2023. https://www.wto.org/english/res_e/statis_e/trade_evolution_e/evolution_trade_wto_e.htm.
[13] "Atlas® International." 2025. Atlasintl.com. 2025. https://www.atlasintl.com/blog/how-trade-agreements-affect-global-trade-supply-chain.

some sovereignty. Many developed countries have enough influence and resources to have a greater say in how international trade law manages these situations. The developing world has less say in how international trade law is created and managed. There lies the issue with international trade law, having enough power to equalize the playing fields of international trade. For example, WTO case DS267 Brazil v. The United States, decided in 2005, found that the United States was in violation of WTO law when it subsidized American cotton farmers.[14] The United States, being a major power, had the power to enact trade distorting policies and was able to delay full compliance till 2014. Another example is the People Republic of China's repeated violations of WTO law, however it has been able to avoid punishment since its accession into the organization in 2001.

The WTO has also failed to enact any significant negotiations in recent years. This means that current international trade is stagnanting and isn't updated for the modern era. Much of the failure in negotiations comes from disagreements between developed countries and the developing world. For example, the Doha Development Round in 2003 failed due to disagreements between countries on agricultural subsidies. Much of current international trade policy favors the developed world, and many developing countries have taken notice and have argued for a free trade system. This impasse has prevented significant reform from taking place.

Most reform of the current international trade system revolves on equalizing the current playing field, and creating a better dispute system. The International Chamber of Commerce lays out a reform framework for the WTO which addresses the two issues discussed above.[15] The best takeaway from this is that the WTO needs to update and clarify current rules and disputes, creating stronger systems of monitoring member states, and strong systems of deliberation. All these reforms would help strengthen the current system of trade, however it does give a clear framework in which rules and systems update over time.

Conclusion

In conclusion, the evolution of global supply chains, from ancient trade routes to today's digitized, AI-driven networks, reflects humanity's continual adaptation to technological, political, and social change. While modern advancements such as automation, artificial intelligence, and blockchain have transformed logistics and improved efficiency, they have also introduced new vulnerabilities, including cybersecurity risks and inequalities between developed and developing nations. Historical efforts like the Bretton Woods Conference, GATT, and the creation of the WTO laid the foundation for modern global trade, but current challenges such as geopolitical tensions,

[14]WTO. 2014. "WTO | Dispute Settlement - the Disputes - DS267." Www.wto.org. 2014. https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds267_e.htm.

[15] ICC (2023), How to fix the WTO: A holistic framework for reform. https://iccwbo.org/news-publications/policies-reports/how-to-fix-the-WTO-a-holistic-frameworkfor-reform

climate change, and uneven participation in trade reform highlight the need for stronger governance and inclusive modernization. For policymakers and international delegates, the key lies in balancing efficiency with resilience. Nations must promote transparency, digital innovation, equitable trade laws, and sustainable practices to ensure that global supply chains remain stable, fair, and adaptable in an increasingly interconnected world.

Guiding Questions for Research

1. How can past resolutions and actions be iterated and added on to in order to match the issue of supply chain disruptions?
2. What are the underlying causes for the various supply chain disruptions, and how can they be addressed?
3. How can the restructuring of supply chains support developing countries?

Guiding Questions for Debate

1. How can delegates retain sovereignty while signing onto international trade agreements?
2. How can the implementation of modern technology and artificial intelligence be done in a way that doesn't introduce additional vulnerabilities?
3. How can supply chain disruptions related to geopolitical conflicts be resolved while respecting the parties involved and their interests?
4. What role should international monetary bodies play in the reduction of supply chain disruptions?