

JUNE 2025

Interconnected: Global Electronics Trade in an Age of Disruption

Contents

Executive Summary	3
Introduction	5
The Scale and Structure of Global Electronics Trade	7
How Electronics Supply Chains Differ From Other Industries	10
Trading Places: Tracking the Flow of Global Electronics Trade	15
DEMAND FOR FINISHED ELECTRONICS	17
DEMAND FOR ELECTRONICS INPUTS AND COMPONENTS	21
Regional Spotlights	24
UNITED STATES: A Consumption Powerhouse with Strategic Vulnerabilities	26
EUROPEAN UNION: A Stable Trade Bloc Balancing Integration and Dependency	30
CHINA: A Global Electronics Leader Built on Global Inputs	34
THE TAIWAN REGION: An Indispensable Supplier Powering the Global Electronics Backbone	37
INTRA-ASIA TRADE: Deep Integration Driving Global Supply Chains	39
MEXICO: Rising as a Key Node in the Western Electronics Ecosystem	41
INDIA: A Rising Supplier of Electronics Still Dependent on Global Inputs	44
A GLOBAL SYSTEM WITH REGIONAL EXPRESSIONS	47
The Policy Disconnect: Decoupling vs. Dependency	50
Strategic Implications for Industry & Policymakers	53

Executive Summary

Electronics manufacturing is the most globally interconnected industry in the world. Trade in electronics inputs and finished goods has reached \$4.5 trillion, representing more than 20% of global merchandise trade. Behind every smartphone, laptop, or server lies a web of international transactions involving semiconductors, batteries, connectors, printed circuit boards, and hundreds of other components. While many discussions focus on where a product is assembled, this report emphasizes the critical importance of where it begins: where components are made, sourced, and moved.

Electronic Components and Inputs Now Drive More Trade Than Finished Goods

- In 2023, global trade in electronic components exceeded finished electronics by over \$408 billion.
- As products become more complex and modular, the number and value of globally sourced components continue to grow.
- Inputs now represent the majority share of electronics trade, making upstream supply chains the critical locus of strategic control.

China Remains Central, But Its Dominance Is Evolving

- China remains the largest supplier of finished electronics, with \$622 billion in shipments in 2023, accounting for roughly 30% of global trade in this category. Yet its dominance is slipping. Between 2017 and 2023, China's share of global finished

electronics trade dropped by 4.6 percentage points, and its portion of U.S. electronics sourcing fell from 47% to 27%.

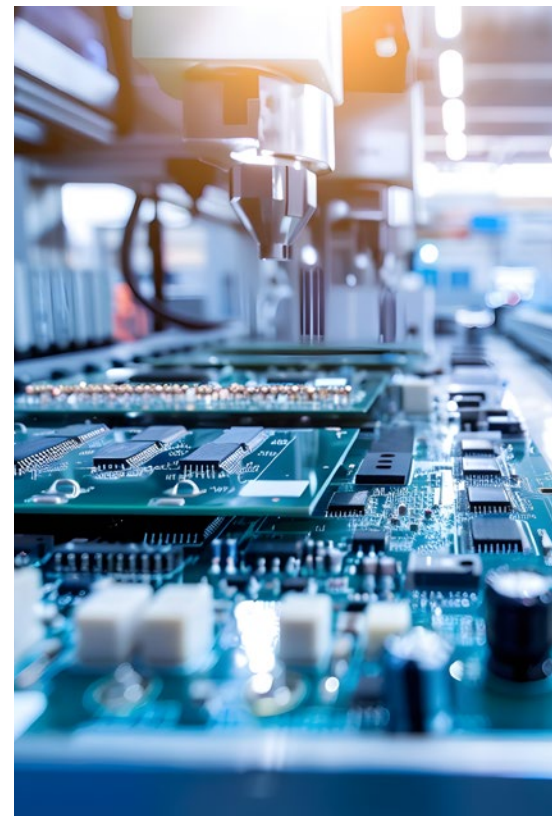
- At the same time, China is a global hub for components. It supplies 38% of Europe's electronics input imports, up from 30% in 2017, and plays a key upstream role in production for Viet Nam, India, and other fast-growing markets.
- In 2023, China imported \$630 billion in components, more than the U.S., EU, and Singapore combined, underscoring its dual leading role as both buyer and seller in global electronics value chains.

Global Electronics Producers Rely on Global Inputs

- Viet Nam and India have rapidly emerged as key suppliers in the global electronics supply chain. Between 2017 and 2023, Viet Nam's electronics exports rose by \$48 billion, a 74% increase, and India's surged from under \$6 billion to over \$28 billion, a 380%

rise. Despite this growth, neither country has built self-sufficient supply chains. Both depend heavily on imported components from China, the Taiwan region, and Rep. of Korea.

- For example, India's input imports rose by 122% and Viet Nam's by 83% during that period, showing





that their export capacity is powered by global sourcing.

U.S. and EU: Divergent Paths on China

- Following its imposition of tariffs on China in 2018, the U.S. sharply reduced electronics imports from China, shifting \$49 billion in sourcing to countries like Viet Nam and Mexico.
- Viet Nam's share of U.S. finished electronics imports rose from 2.6% to 10% between 2017 and 2023.
- In contrast, the EU increased its reliance on China. EU electronics imports from China rose by \$43 billion over the same period, and China now supplies nearly half of all EU finished electronics.

Intra-Asian Trade: The Foundation of Global Electronics

- Asia has become the undisputed hub of global electronics manufacturing and trade.
- In 2023, Asian countries imported nearly \$1.6 trillion in electronics from within the region. About

90% of imported components and 74% of imported finished electronics in Asia came from other Asian economies.

- More than three-quarters of intra-Asian electronics trade is in components, highlighting the region's dense, input-driven supply network.

Strategic Implications for Industry and Policymakers

- **FOR INDUSTRY:** Electronics firms must prioritize supply chain design, emphasizing diversified sourcing from strategic partners, enhancing regional industrial strategies, and planning for potential risks. Resilience comes not from isolation but from flexibility and intelligent management of global networks.
- **FOR POLICYMAKERS:** Full decoupling is economically unrealistic. No single country can replicate the multi-nation value chain behind modern electronics. Governments should invest in domestic strengths, coordinate with international partners, and align trade and industrial policy with the realities of a globally connected electronics sector.

Governments should invest in domestic strengths, coordinate with international partners, and align trade and industrial policy with the realities of a globally connected electronics sector.

Introduction

Resilience in electronics trade will not come from isolation. It will come from clarity, cooperation, and a strategic view of how global integration can be shaped.

Electronics sit at the core of the modern economy. They power the devices we carry, the machines that produce our goods, the systems that manage our infrastructure, and the networks that connect our world. Behind every finished electronic product is a complex and globally distributed supply chain that spans continents and crosses borders countless times before a device ever reaches the hands of a consumer.

In recent years, rising geopolitical tensions, global health crises, and targeted industrial policies have brought new attention to

the structure and vulnerabilities of electronics supply chains. Policymakers in many countries are calling for greater domestic manufacturing capacity, shorter supply chains, and reduced dependence on strategic competitors. At the same time, companies are facing increased pressure to ensure supply continuity, reduce risk, and balance costs with resilience.

Understanding global trade flows, particularly the distinction between finished electronics and electronics inputs, offers a clearer picture of how and where value is created and exchanged. Trade data reveal the scale of global interdependence, the shifts driven by policy and market forces, and the emerging dynamics in key regions.

To grasp the full structure of these supply chains, it is important to look beyond final assembly. Rather than focusing solely on where final electronic products are assembled, attention must be paid to the origin and movement of components that make final production possible. Finished goods rely on a deep and diverse network of inputs, and attempts to reroute or localize production face real limits without access to these global supply chains.





**Industrial strength
in electronics
manufacturing
depends not on
self-reliance,
but on strategic
participation in
global supply
networks.**

Examining regional dynamics brings further clarity, helping to make sense of shifting import and export patterns and revealing how countries are adapting to new trade realities. When narrative is separated from assumption and analysis is grounded in data, it becomes possible to see what is changing, what is not, and what may lie ahead.

In this era of renewed focus on industrial resilience, it's important

to recognize that electronics manufacturing doesn't start at the assembly line, it starts with a global web of inputs. Any forward-looking strategy must begin there. It must also acknowledge a fundamental truth: to be a major supplier or producer of electronics, a country must also be a major importer. The electronics industry is far too complex and specialized for any one nation to command alone.

The Scale and Structure of Global Electronics Trade

The Scale and Structure of Global Electronics Trade

Finished goods may get the headlines, but it's the flow of components that defines global electronics trade.

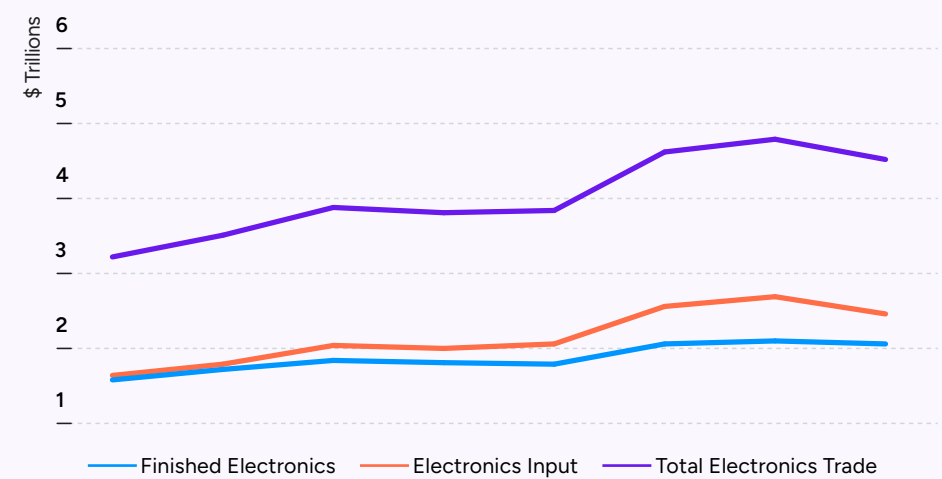
In 2023, global trade in electronics, including both finished goods and inputs, reached \$4.5 trillion.¹ This figure accounted for over 20% of total global merchandise trade, meaning one out of every five dollars in goods traded across borders was tied to the electronics ecosystem. That share has remained remarkably stable since 2016, despite global shocks such as trade tensions, semiconductor shortages, and the global COVID pandemic.

While discussions around electronics trade often focus on finished goods such as laptops, smartphones, and televisions, these account for less than half of total trade value. In 2023, trade in finished electronics totaled just over \$2 trillion. Electronics inputs, an often overlooked but strategically critical category, represent even greater economic value, totaling nearly \$2.5 trillion. These include semiconductors, batteries, sensors, wiring harnesses, circuit boards, and other parts that are essential to final production.

This trade in inputs has grown not only in absolute value but also in strategic weight. In 2016, inputs and finished goods each accounted for roughly \$1.6 trillion in global trade.



Global Electronics Trade



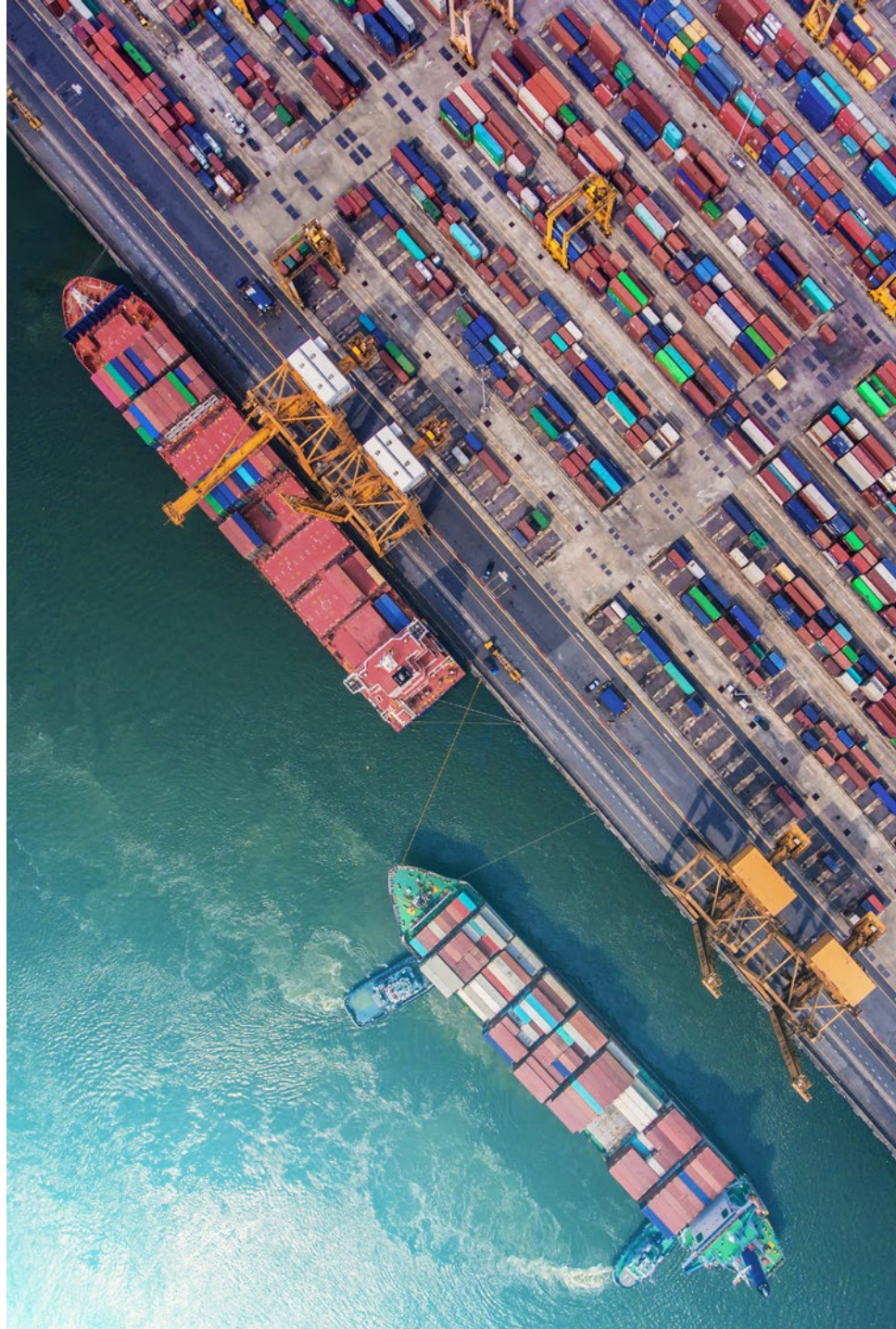
By 2022, inputs trade reached nearly \$2.7 trillion, nearly \$600 billion more than trade in finished electronics. Although both categories declined slightly in 2023, inputs remained the larger segment over \$400 billion, or 20%.

As products have become more modular and technologically advanced, the reliance on complex, globally sourced components has grown accordingly. Global input

flows are not just a prelude to final assembly, they are the core of the value chain. A semiconductor may cross several borders before it is installed in a final product. A single smartphone contains components sourced from dozens of countries. The finished product is only the last stop in a much longer and more fragmented journey.

The structure of global electronics trade is therefore defined less by where products are assembled and more by how they are made. This distinction matters. Policymakers aiming to reshore production or reduce reliance on specific countries often focus on final assembly. However, the data makes clear that strategic leverage lies upstream, where components are designed, fabricated, tested, and shipped across borders. Understanding this reality, electronics manufacturers are not just skilled assemblers. They are supply chain experts capable of adjusting production and sourcing strategies across borders in response to market shifts and regulatory pressures.

Appreciating the scale of this trade and the structure behind it is essential for any serious discussion of industrial policy, economic security, or global competitiveness. But the foundation is clear: electronics trade is large, global, and shaped more by inputs than by outputs.



TOTAL GLOBAL TRADE (TRILLIONS OF DOLLARS)

	2016	2017	2018	2019	2020	2021	2022	2023	\$ CHANGE (2017- 2023)	% CHANGE (2017- 2023)
Finished Electronics Trade	1.58	1.72	1.84	1.81	1.79	2.06	2.10	2.06	0.33	19.43%
Electronics Inputs and Components Trade	1.64	1.79	2.04	2.00	2.06	2.56	2.69	2.46	0.67	37.5%
Non-electronics Trade	11.90	13.37	14.75	14.34	12.80	16.36	18.74	17.41	4.04	30.2%
Total Trade	15.12	16.88	18.64	18.15	16.65	20.99	23.53	21.93	5.04	29.9%

How Electronics Supply Chains Differ From Other Industries

How Electronics Supply Chains Differ From Other Industries

Global supply chains are not all created equal. While many sectors depend on international trade, electronics manufacturing stands apart in both structure and scale. Compared to other industries, electronics trade is more fragmented, more input-intensive, and more interconnected across borders. These distinctions make it far more difficult to disentangle electronics production from global supply chains.

As previously noted, one of the most striking distinctions of electronics manufacturing is the role of inputs. In electronics, components such as semiconductors, sensors, batteries, and printed circuit boards are the foundation of final production. Smartphones, for example, are made up of thousands of discrete components that often move through multiple countries before becoming a finished product. This high degree of modularity allows electronics producers to source subcomponents from specialized suppliers around

the world, creating a deeply interdependent network.

This is not the case in many other globally traded sectors. Consider the automotive industry, which is often cited as having complex international supply chains. In 2023, global trade in autos and parts (including tires) totaled approximately \$1.8 trillion, significantly smaller than the \$4.5 trillion in electronics trade. Moreover, trade in electronics inputs exceeded that in finished goods by 20%. For autos, the ratio is reversed: there was less than \$0.80 in parts trade for every \$1.00 in shipments of completed vehicles. This difference reflects how electronics inputs are used across a wide range of products, from consumer devices to industrial equipment and vehicles. By contrast, most auto parts end up in specific vehicles and have fewer alternative applications.

Advanced electronics components are also characterized by high value

density and low substitutability. A small chip or connector may be sourced from only a handful of producers worldwide. Finding alternative suppliers or redesigning products around available parts is often costly, time-consuming, and at times technically infeasible. Losing access to even one critical, low-cost component can bring entire production lines to a halt. This makes electronics supply chains especially sensitive to trade disruptions, export controls, or natural disasters.

In addition, the geography of electronics trade is more diffuse. Final assembly may happen in one country, but the value chain leading up to that point involves many others. A smartphone assembled in India may contain semiconductors from the Taiwan region, capacitors from Japan, and sensors from Germany, all shipped using logistics hubs in Singapore or Rep. of Korea. This kind of distribution is less common in other industries, where production





20%

Global trade in electronics inputs outpaces finished goods trade by 20%.

is often more vertically integrated or clustered within a region.

Unlike many other traded goods, electronics production relies heavily on intangible inputs that are not easily captured in trade statistics. The intangible inputs include proprietary chip architectures, embedded firmware, design software, and specialized manufacturing tools, many of which are controlled by a small number of firms located in just a few countries. Although these intangible inputs may not move through ports or appear in customs declarations, they are foundational to the functioning of the electronics supply chain. Without access to

these intellectual and technical assets, production can stall even when the physical components are readily available.

Many segments of high-end electronics manufacturing demand extraordinary capital investment and long development timelines. Constructing a state-of-the-art fabrication facility, for example, often requires several years and billions of dollars in investment. This level of capital intensity limits the flexibility to relocate or expand production in response to sudden policy changes, trade restrictions, or market disruptions. Unlike industries with lower barriers to entry, the scale and complexity of these investments make rapid adjustments nearly impossible, reinforcing the rigidity of existing supply chain structures.

While the physical infrastructure behind electronics production is capital-intensive and difficult to relocate, the products themselves evolve rapidly. This creates a tension between fixed manufacturing assets and fluid market requirements. Technological cycles in this sector move at a faster pace, with frequent product updates and short innovation windows. As a result, new sourcing relationships emerge frequently. This procurement dynamism set against a background capital-intensive fabrication adds to the challenge of predicting supply risks and planning long-term industrial policy.

For all of these reasons, electronics supply chains require a different lens. Comparing the electronics sector to other sectors like autos, steel, or textiles can lead to misleading conclusions. Policy solutions aimed at increasing resilience or reducing dependence must start by recognizing electronics trade is driven by global inputs, not just final outputs. Any attempt to reshape these networks must take this structure into account.

A Turning Point in Global Electronics Trade

By the end of 2024 and into early 2025, U.S. electronics trade entered a period of rapid realignment. Longstanding sourcing patterns began to shift at an unprecedented pace, driven by a convergence of rising tariffs, industrial policy incentives, and strategic supply chain recalibration. While trade diversification had been gradually building over the previous decade, recent data reveal a sharp inflection point. China's dominance in U.S. import flows declined significantly within just a few months.

This acceleration represents more than a temporary disruption. It marks the beginning of a new phase in global production strategy. Companies are not merely reacting to risk; they are actively reengineering supply chains. Countries like India and Viet Nam, once peripheral in certain product categories, are now central to this transition, capturing growing shares of high-volume electronics manufacturing.

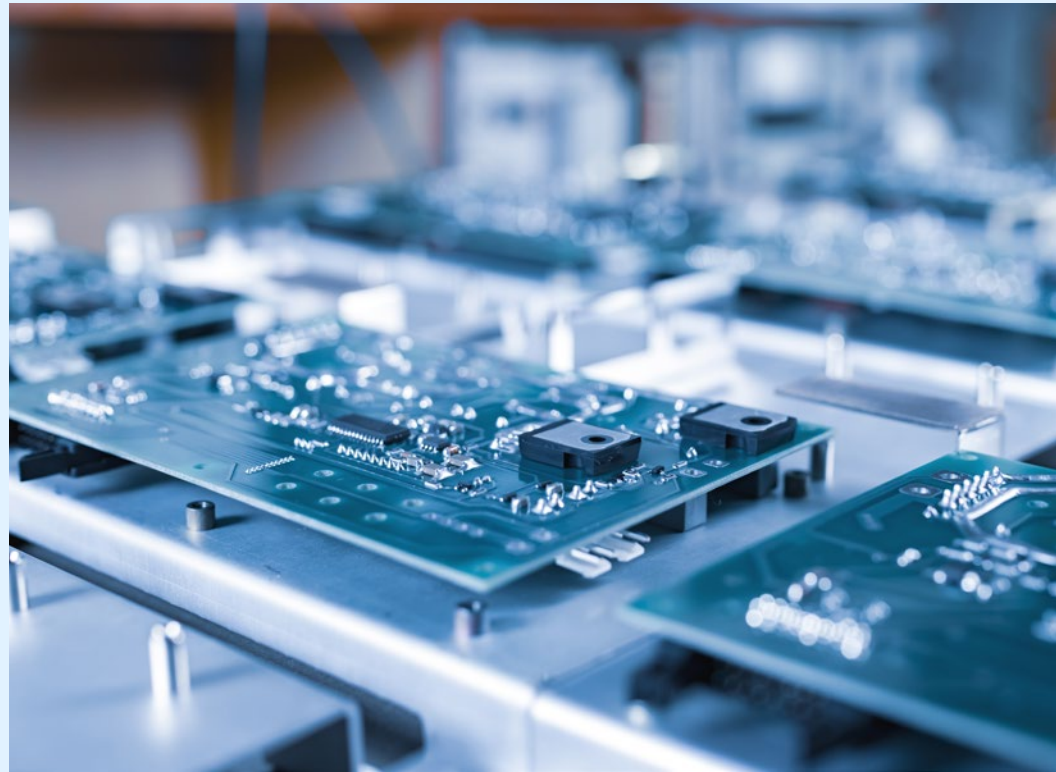
SMARTPHONES

Between early 2023 and mid-2025, China's share of U.S. smartphone

imports fell dramatically, dropping from over 80 percent to just 25 percent by April 2025. During the same period, India's share surged from under 5 percent to more than 40 percent. Viet Nam's share, while

LAPTOPS

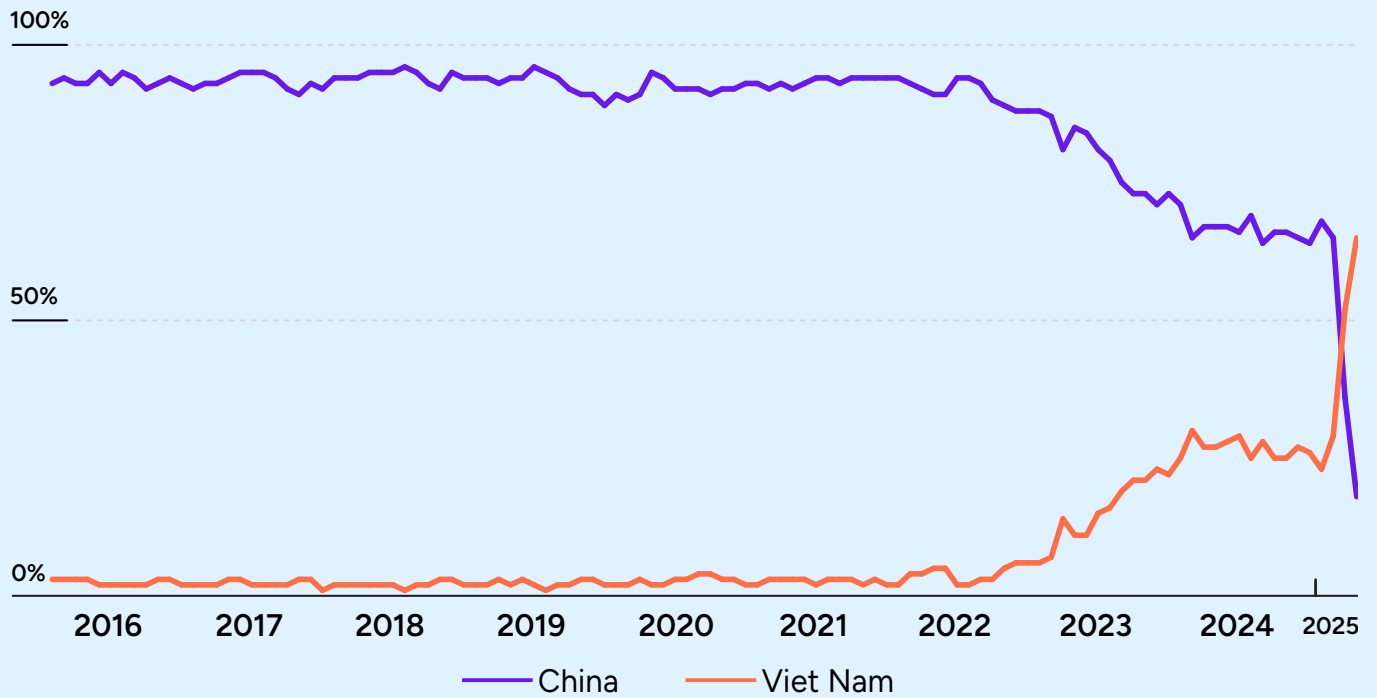
A similar shift is underway in laptop sourcing. Until late 2024, China consistently accounted for about 90



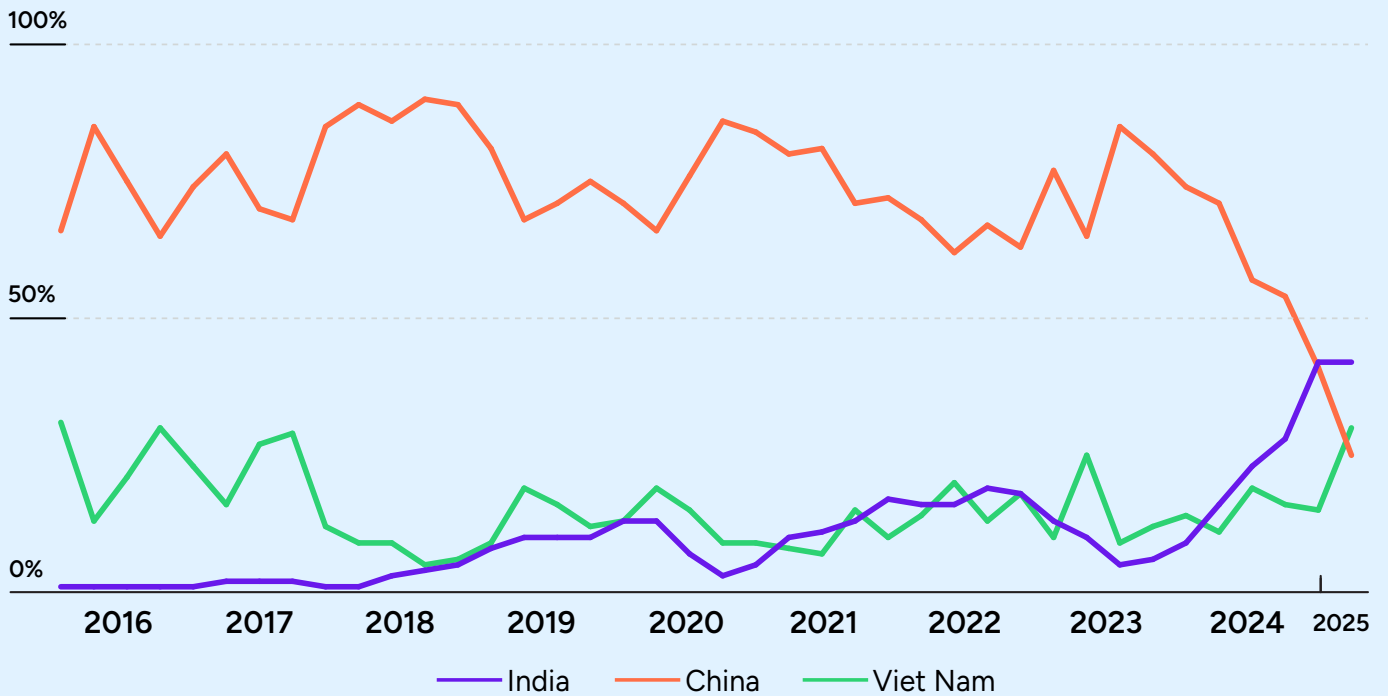
relatively stable around 15 percent in prior years, jumped to 30 percent in April. These shifts point to a major reconfiguration of supply chains, with U.S. buyers diversifying sourcing beyond China and India emerging as a key beneficiary.

percent of U.S. laptop imports. That dominance collapsed in early 2025, while Viet Nam's share rose sharply in parallel. The abrupt change reflects a concentrated push by manufacturers and retailers to reduce dependence on Chinese suppliers and strengthen ties with Southeast Asian partners.

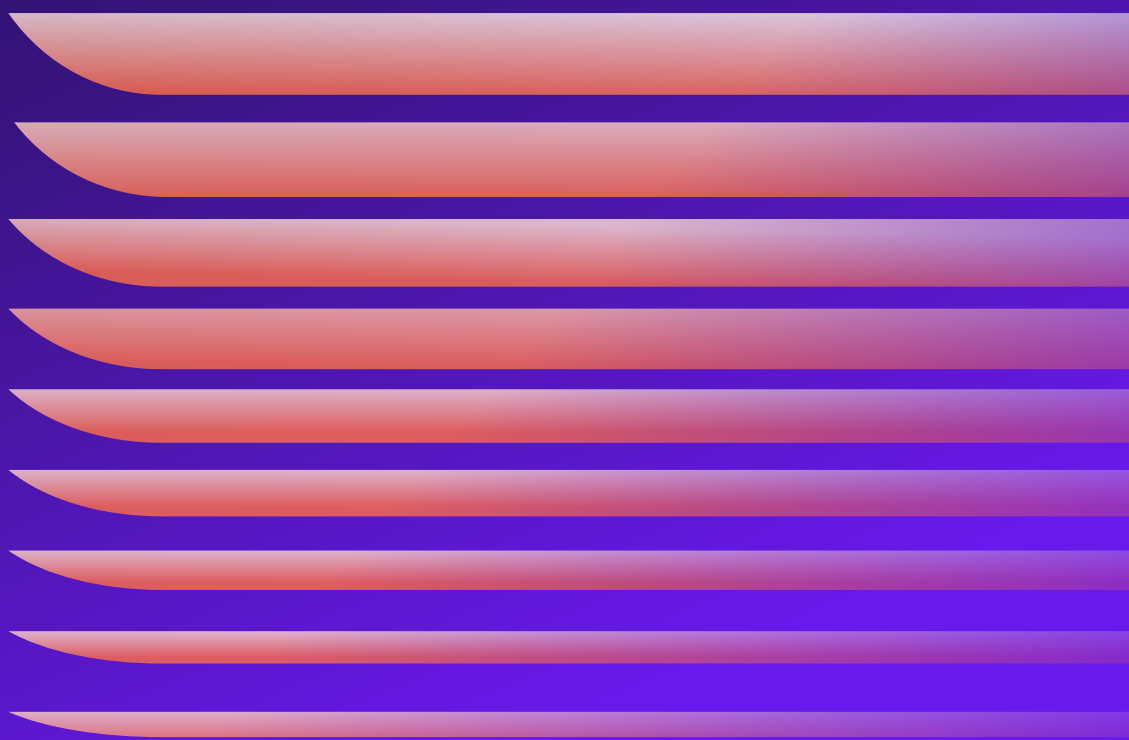
Share of U.S. Laptop Imports



Share of U.S. Smartphone Imports



Trading Places: Tracking the Flow of Global Electronics Trade



Trading Places: Tracking the Flow of Global Electronics Trade

Global electronics trade can be viewed through two main categories: imports of finished electronics and imports of electronics inputs and components. Looking at where countries source these goods reveals different roles within the supply chain. Some economies import large volumes of consumer-ready products

countries participate in both flows, blending production, consumption, assembly, and input sourcing as part of a broader global system.

Analyzing where countries obtain their imports helps reveal the structure of modern electronics supply chains. Each flow tells a

producing high-value components and subassemblies. Some nations play both roles simultaneously, while others are rising as new centers of activity.

The data reveals several important patterns. First, China leads as the dominant supplier of finished electronics, but that lead has narrowed as companies and countries have diversified their sourcing. Less recognized, China is also the top importer of electronics inputs, reflecting the country's own dependence on globally sourced components to support its manufacturing base.

Second, countries such as Viet Nam and India have significantly expanded electronics production volumes, becoming key sources of finished goods. However, their production capacity remains deeply reliant on upstream suppliers for critical inputs. Their growth is not fully displacing China but rather integrating into the same global supply chains that support China's manufacturing base.

Third, developed economies like the United States and the European Union are primarily end markets for finished electronics, but they also source important inputs from a variety of global suppliers. Their trade patterns have shifted in recent years due to tariffs, policy changes, and efforts to enhance supply chain resilience.

Finally, intra-Asian trade has become the central force in global electronics flows. Many of the world's major buyers and suppliers of electronics are located in Asia, and the region now plays an important role in trade in both inputs and finished



assembled abroad, while others depend heavily on international suppliers for semiconductors, circuit boards, and other components. Many

different story. Some countries lead as final assembly hubs, moving large volumes of consumer-ready products across borders. Others specialize in

LEADING IMPORTERS OF FINISHED ELECTRONICS

MARKET	IMPORT VALUE, 2023 (USD BILLIONS)	CHANGE IN IMPORTS VALUE, 2017-2023 (USD BILLIONS)	CHANGE IN IMPORTS 2017-2023	SHARE OF GLOBAL IMPORTS, 2023	CHANGE IN SHARE OF GLOBAL IMPORTS, 2017-2023
WORLD	2,055.6	334.4	19.4%	100%	N/A
USA	470.2	95.6	25.5%	22.9%	1.1%
EU	324.2	73.1	29.1%	15.8%	1.2%
China	162.5	40.5	33.2%	7.9%	0.8%
Japan	80.7	3.5	4.5%	3.9%	-0.6%
United Kingdom	75.9	13.9	22.5%	3.7%	0.1%
Mexico	58.8	11.1	23.2%	2.9%	0.1%
Canada	51.0	8.4	19.8%	2.5%	0.0%
Rep. of Korea	49.2	7.4	17.8%	2.4%	0.0%
Singapore	42.1	10.1	31.6%	2.0%	0.2%
India	40.9	5.8	16.7%	2.0%	0.0%

\$470B

In 2023, the U.S. imported \$470 billion in finished electronics.

47%

Just three markets, the U.S., EU, and China, accounted for nearly 47% of global imports of finished electronics in 2023.

\$59B

Mexico's \$59 billion in finished electronics imports reflects its growing role as both a consumption market and production hub.

electronics. The center of gravity in global electronics has not only shifted toward Asia, it has become increasingly concentrated there.

Taken together, global sourcing patterns for electronics, both components and finished goods, are dynamic and deeply integrated. Understanding who buys from whom, and how those relationships are evolving, is essential to making sense of today's electronics economy.

Demand for Finished Electronics

Global trade in finished electronics reflects both where demand is concentrated and where production capacity is established. While the movement of goods across borders follows many paths, patterns in imports reveal how countries position themselves within the electronics value chain, whether as end markets, regional hubs, or production platforms. Understanding these

patterns helps illuminate not only who consumes electronics, but also where producers are most deeply embedded in the global supply system.

Major Importers of Finished Electronics

In 2023, global trade of finished electronics totaled just over \$2 trillion. That demand was concentrated in a handful of large, high-income economies. The United States led by a wide margin, importing \$470 billion worth of finished electronics, nearly 23% of the global total. This figure is nearly equal to the combined imports of the next two largest importers, the European Union² and China³, and it was nearly six times that of Japan, the fourth-largest importer.

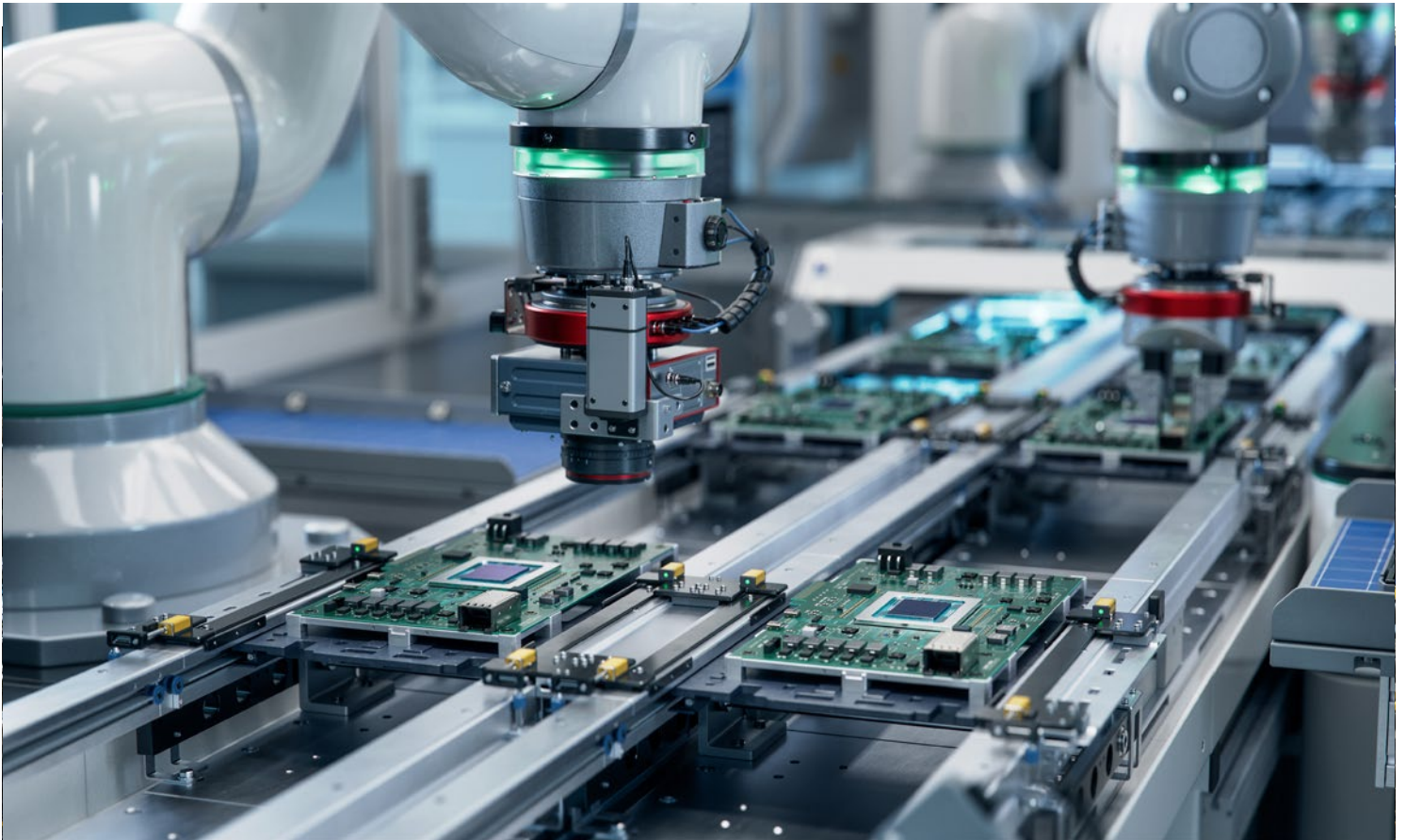
From 2017 to 2023, the United States, the European Union, and China all increased both the value and share of their finished electronics imports. The United States' share rose 1.1 percentage point, the EU's share

Import patterns reflect more than just consumption, they reveal a country's place in the electronics value chain.

increased 1.2 percentage points, and China's share grew 0.8 percentage points. Meanwhile, Japan's share declined despite modest growth in import value, reflecting slower relative expansion.

Demand composition varies significantly by region, reflecting each economy's industrial role and consumer profile. The United States and European Union function primarily as end markets for a wide range of finished electronics. In the United States, imports of finished electronics are driven by robust consumer demand for smartphones, laptops, and televisions, as well as

China's import profile is more complex. It remains a major consumer market for finished goods, particularly mobile devices and smart appliances, reflecting its growing middle class. At the same time, China imports a significant volume of finished electronics for integration into more complex systems. This is especially evident in high-end product segments such as advanced computing and telecommunications, where final testing, packaging, or customization often occurs within China before goods are shipped abroad. Some products also enter China as finished units but are bundled with domestically produced



enterprise spending on data centers, servers, and networking equipment. The EU shows similar patterns, though with greater variation across member states depending on national industrial strategies and income levels.

accessories or software and then re-exported as value-added systems.

Other rising importers like Mexico and the United Kingdom also show distinct sourcing patterns. Mexico's 23% increase in finished electronics



74%

Vietnam shipped nearly \$115 billion worth of finished electronics in 2023, up 74% from 2017.

imports from 2017 to 2023 reflects both domestic growth and its role as a production and logistics hub within North America. Many of the finished goods imported into Mexico are destined for further customization or integration into more advanced systems before being exported to the United States under the U.S.-Mexico-Canada Agreement (USMCA) framework. The UK's increase, by

contrast, is more consumption-driven, fueled by demand for consumer electronics and IT infrastructure in a services-oriented economy.

Leading Sources of Finished Electronics

Just as import data reveals demand concentrations, it also points to the economies that serve as primary sources of finished electronics. China remained the world's dominant supplier of finished electronics, responsible for over \$622 billion, roughly 30% of global finished electronics imports. Its total exceeded the combined shipments from the next four largest suppliers: the European Union, the United States, Mexico, and Viet Nam.

While still dominant, China's role is changing. Between 2017 and 2023, its growth in finished electronics shipments was modest, at less than 4%, causing its share to fall

LEADING SUPPLIERS OF IMPORTED FINISHED ELECTRONICS

MARKET	IMPORT VALUE, 2023 (USD BILLIONS)	CHANGE IN IMPORTS VALUE, 2017-2023 (USD BILLIONS)	CHANGE IN IMPORTS 2017-2023	SHARE OF GLOBAL IMPORTS, 2023	CHANGE IN SHARE OF GLOBAL IMPORTS, 2017-2023
WORLD	2,055.6	334.4	19.4%	100%	N/A
China	622.5	21.7	3.6%	30.3%	-4.6%
EU	177.1	12.5	7.6%	8.6%	-0.9%
USA	134.6	20.4	17.9%	6.5%	-0.1%
Mexico	120.0	32.0	36.4%	5.8%	0.7%
Viet Nam	114.5	48.5	73.6%	5.6%	1.7%
Other Asia, nes	85.4	44.6	109.0%	4.2%	1.8%
Japan	67.0	-2.9	-4.1%	3.3%	-0.8%
Thailand	62.6	17.9	40.1%	3.0%	0.4%
Malaysia	53.5	5.9	12.3%	2.6%	-0.2%
Switzerland	50.8	14.0	38.2%	2.5%	0.3%

LEADING IMPORTERS OF ELECTRONICS INPUTS

MARKET	IMPORT VALUE, 2023 (USD BILLIONS)	CHANGE IN IMPORTS VALUE, 2017-2023 (USD BILLIONS)	CHANGE IN IMPORTS 2017-2023	SHARE OF GLOBAL IMPORTS, 2023	CHANGE IN SHARE OF GLOBAL IMPORTS, 2017-2023
WORLD	2,464.3	672.7	37.5%	100%	N/A
China	630.0	172.1	37.6%	25.6%	0.0%
USA	231.3	67.0	40.8%	9.4%	0.2%
EU	224.2	68.4	43.9%	9.1%	0.4%
Singapore	102.3	13.9	15.7%	4.2%	-0.8%
Viet Nam	102.1	46.4	83.5%	4.1%	1.0%
Rep. of Korea	100.5	33.6	50.3%	4.1%	0.3%
Mexico	93.5	31.9	51.7%	3.8%	0.4%
Other Asia, nes	89.0	25.8	40.7%	3.6%	0.1%
Japan	72.2	12.9	21.7%	2.9%	-0.4%
Malaysia	68.5	18.8	37.9%	2.8%	0.0%

No economy builds electronics alone.

by 4.6 percentage points. While China's 2023 shipments matched the combined total of the next four largest suppliers, this still marks a notable decline from 2021, when it shipped as much as the next seven combined.

At the same time, other countries have emerged as important sources of finished electronics. Viet Nam increased its shipments by \$48 billion, a nearly 74% rise over six years. The Taiwan region's shipments more than doubled, from less than \$41 billion to nearly \$86 billion. India saw the steepest relative growth, from under \$6 billion in 2017 to more than \$28 billion in 2023, a 380% increase, and a number that continues to grow.

These trends reflect the growing role of emerging markets in final assembly and finished goods production. But critically, none of these countries operate independently. Their rise as major suppliers has been powered by imports of electronics inputs

from around the world. In fact, the fastest-growing sources of finished electronics are also among the fastest-growing importers of semiconductors, circuit boards, and other components.

More established economies such as the United States, European Union, and Japan have either declined in importance as primary sources of finished electronics or held relatively steady. Although the total value of goods originating from these countries has increased, their growth has lagged behind that of newer production centers. From 2017 to 2023, the share of global imports sourced from the European Union fell by 0.9 percentage points, while Japan's share declined by 0.8 points and the United States' by 0.1 points. This shift reflects not a wholesale relocation of manufacturing, but a rebalancing of sourcing within a globally integrated system.

As importing countries work to diversify their supply chains and

reduce reliance on any single partner, sourcing patterns for finished electronics continue to shift. Still, the overall structure of production remains global, and a country's ability to remain a key supplier depends on sustained access to a broad and reliable base of upstream component providers.

Demand for Electronics Inputs and Components

Electronics inputs such as semiconductors, sensors, batteries, circuit boards, and wiring harnesses form the backbone of modern electronics manufacturing. These components are critical not only for final assembly, but for maintaining competitiveness in a rapidly evolving global economy. In 2023, global imports of electronics inputs totaled \$2.46 trillion, surpassing finished electronics trade and underscoring a fundamental truth: no country

can produce advanced electronics at scale without reliable access to globally sourced inputs.

Major Importers of Electronics Inputs

China is the world's largest importer of electronics inputs by a significant margin. In 2023, it imported \$630 billion in components, accounting for more than a quarter of all global input imports. This total exceeds the combined imports of the next three largest importers: the United States, the European Union, and Singapore. This reflects China's role as the leading final assembly hub for global electronics production, but also its own dependence on upstream suppliers across Asia and beyond.

While the United States and European Union are often viewed primarily as end markets for finished electronics, their roles as major importers of electronics inputs, ranking second and third

\$2.5T

Total global electronics input imports in 2023 was \$2.5T. This surpassed finished goods trade, reinforcing the centrality of upstream components.

630B

In 2023, China imported \$630 billion in electronics components, more than a quarter of global input imports.

LEADING SUPPLIERS OF ELECTRONICS INPUTS

MARKET	IMPORT VALUE, 2023 (USD BILLIONS)	CHANGE IN IMPORTS VALUE, 2017-2023 (USD BILLIONS)	CHANGE IN IMPORTS 2017-2023	SHARE OF GLOBAL IMPORTS, 2023	CHANGE IN SHARE OF GLOBAL IMPORTS, 2017-2023
WORLD	2,464.3	672.7	37.5%	100%	N/A
China	438.8	143.1	48.4%	17.8%	1.3%
Other Asia, nes	391.2	180.4	85.6%	15.9%	4.1%
Rep. of Korea	213.5	28.2	15.2%	8.7%	-1.7%
Japan	148.7	14.8	11.1%	6.0%	-1.4%
EU	142.7	26.7	23.0%	5.8%	-0.7%
USA	119.4	6.5	5.7%	4.8%	-1.5%
Malaysia	117.7	18.0	18.1%	4.8%	-0.8%
Viet Nam	111.9	62.2	125.0%	4.5%	1.8%
Singapore	71.1	15.5	28.0%	2.9%	-0.2%
Mexico	58.9	18.7	46.4%	2.4%	0.1%

\$830B

Together, China and the Taiwan region accounted for one-third of global electronics input supply.

125%

Vietnam more than doubled its role in global input supply between 2017 and 2023.

15%

From 2017 to 2023, the Republic of Korea grew its electronics input shipments by 15%, reinforcing its role as a key upstream supplier.

globally, reflect deeper industrial significance. These imports support a broad array of high-value sectors, including aerospace, medical devices, automotive systems, and advanced manufacturing. Though less visible in consumer-facing production, both the U.S. and EU maintain robust upstream activity that depends heavily on access to globally sourced components. Their position in the input trade underscores the importance of looking beyond final assembly to understand how innovation and value creation are distributed across the electronics ecosystem.

While China remains dominant, the geography of input demand is in the midst of a massive diversification. Between 2017 and 2023, several economies experienced rapid growth in electronics input imports, reflecting rising production capacity. India led all countries with nearly a 122% increase, followed by Viet Nam at 83%, while Rep. of Korea, Mexico, and Thailand grew by over 50%. The United States and European Union also posted growth above 40%, though they remain under 10% each of global input demand. These figures highlight a broader trend: input sourcing is expanding beyond a few traditional centers, driven by the rise of new manufacturing bases.

The growth in input imports among countries like India and Viet Nam mirrors their rise as major suppliers of finished electronics. Their ability to scale production depends directly on access to global components, reinforcing the interdependence of global supply chains. Conversely, countries pursuing localization without global sourcing risk falling behind.

Access to electronics inputs is not only an economic necessity, but also a strategic advantage. The ability to source components at scale enables countries to respond to demand shifts, enter new markets, and build high-value production capacity. Without that access, production systems become more fragile, less competitive, and slower to adapt.

Leading Sources of Electronics Inputs

The ability to supply electronics components at scale determines which countries sit at the center of the global value chain. In 2023, the largest sources of electronics inputs were China, at more than \$438 billion, and the Taiwan region, at \$391 billion. Together, they accounted for more than a third of all global





**Economies that rise
as producers do so
by importing more,
not less.**

input shipments. The Taiwan region in particular has become a critical supplier, especially in semiconductors and other advanced components.

Between 2017 and 2023, the Taiwan region's role expanded rapidly, with a more than 85% increase in input and component shipments. Viet Nam also stood out, more than doubling its contribution to global input supply. China's input shipments rose by 48% over the same period, even as assembly operations moved to other countries. This suggests Chinese component suppliers have increasingly adapted by serving external markets rather than relying solely on domestic manufacturing demand. Rather than losing ground entirely, China's role is evolving as it increasingly supplies value-added components and parts to global brands operating in new assembly locations.

Other established economies, including the United States, European Union, Japan, Singapore, and Rep. of Korea, also increased their shipments of components. However, their share of global input sourcing declined as newer suppliers expanded more

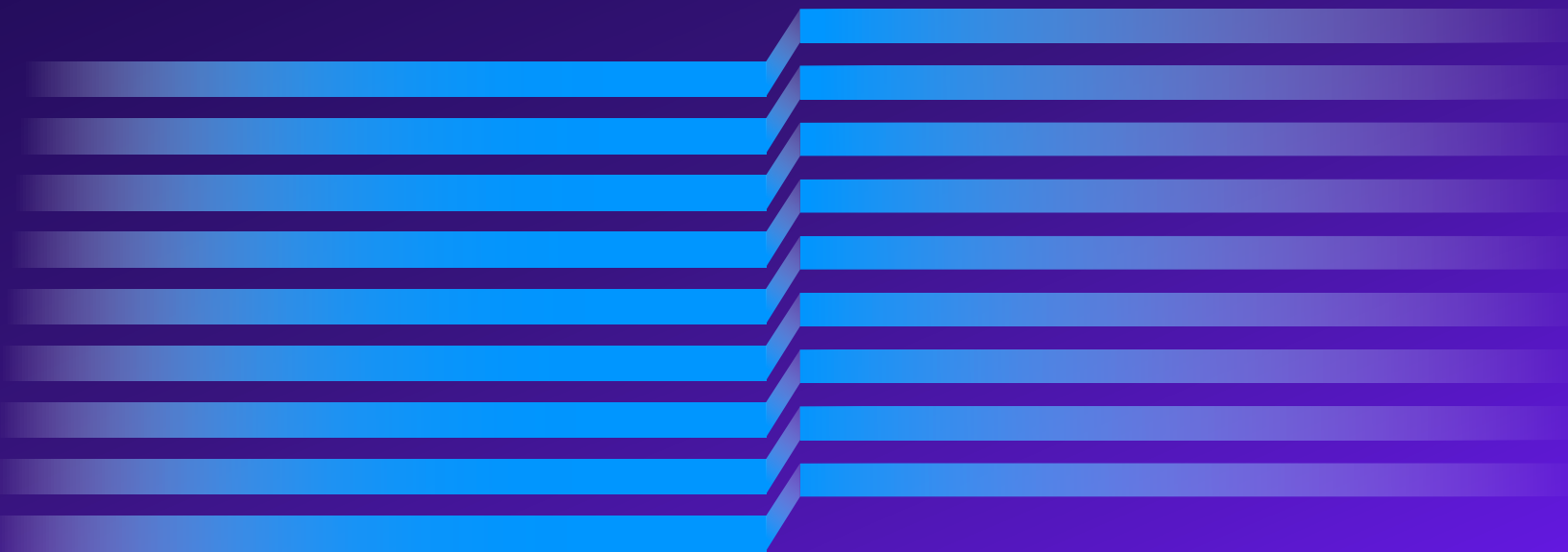
quickly. For example, the United States grew its total shipments by 5.7% between 2017 and 2023, but its global share fell by 1.4 percentage points. Japan also saw its global share fall by 1.4 points, while Rep. of Korea declined 1.7 points and the European Union declined 0.7 points.

These shifts reflect a redistribution of sourcing capacity rather than a collapse of existing producers. Countries that are able to scale fabrication quickly, specialize in specific component types, and maintain close access to upstream suppliers are now capturing a larger share of demand. This underscores the growing competitiveness of emerging Asian economies and the strategic importance of inputs in global trade.

This redistribution is also being shaped by growing pressure to diversify supply chains for greater resilience. Trade tensions, export controls, and industrial policy initiatives have accelerated the search for alternative suppliers, giving agile economies an opportunity to expand their role in global sourcing networks.

Countries that supply electronics inputs will remain highly influential as demand grows for advanced technologies like AI systems, autonomous vehicles, and energy infrastructure. Their position in the supply chain determines not only where production happens, but how fast and flexibly it can respond to innovation and disruption. This influence is magnified by the limited number of countries capable of producing highly specialized inputs, such as integrated circuit substrates for advanced packaging. As key components become harder to substitute, sourcing countries with dominant capabilities in specific technologies will wield even greater leverage in shaping the direction and pace of global innovation.

Regional Spotlights



Regional Spotlights

Behind global trade figures are countries, companies, and individuals making deliberate choices about how they produce, consume, and compete. Understanding the structure of the global electronics supply chain requires moving beyond aggregated averages to examine how individual regions contribute to, and are shaped by, the broader system.

Key economies occupy distinct roles in this landscape. The United States is a dominant consumer market with a growing focus on reshoring and supply chain diversification. The European Union combines strong domestic demand with stable trade relationships and a cautious policy posture. China remains the leading source of finished electronics and the largest importer of inputs, though its position is being reshaped by shifting global demand and the impact of trade policies in other countries. Meanwhile, countries such as Viet Nam, India, Mexico, and Rep. of Korea are rapidly emerging as major production and trading hubs for both inputs and final goods.

Regional dynamics are shaped by a combination of market forces, industrial capacity, labor costs, policy decisions, and geopolitical considerations. Some economies are moving up the value chain into higher-end production and advanced manufacturing, while others are consolidating roles as high-volume assemblers or specialized suppliers. Consumer behavior and cultural preferences also play a role. Many trade imbalances reflect not just policy or production decisions, but consumer preferences and the simple fact that consumers gravitate toward affordable goods regardless of origin. These distinctions matter not only for

understanding where goods are made and consumed, but for anticipating how the global electronics ecosystem may evolve in response to policy shifts, innovation cycles, and geopolitical risk.

No country operates in isolation. Efforts to expand capacity, reduce dependency, or enhance competitiveness must take place within an already interdependent and fast-evolving global framework. Each regional player influences, and is influenced by, developments across the broader electronics trade system.

Understanding the structure of the global electronics supply chain requires moving beyond aggregated averages to examine how individual regions contribute to, and are shaped by, the broader system.



UNITED STATES: A Consumption Powerhouse with Strategic Vulnerabilities

The United States plays a central role in global electronics trade. In 2023, the United States imported \$470 billion worth of finished electronics, making it the world’s largest importer of finished electronics. Its status as a consumption-driven economy makes it a key destination for products assembled in Asia and shipped through global supply chains.

However, the United States is not only a consumer. It is also a significant importer of electronics inputs, purchasing \$231 billion worth of components in 2023. These imports support a broad base of domestic manufacturing industries, including aerospace, defense, automotive, and advanced computing. While less export-oriented than other regions, the U.S. electronics sector remains strategically important and deeply integrated into the global supply chain.

It is also worth noting that while trade data offers valuable insight into cross-border flows, it does not capture the full scope of domestic production and distribution. In 2023, the U.S. electronics industry produced over \$800 billion in goods, much of which was traded between states or consumed within national borders. This internal activity supports a wide range of industries and end markets, underscoring the importance of looking beyond international trade figures to fully understand the scale and structure of electronics production in the United States.

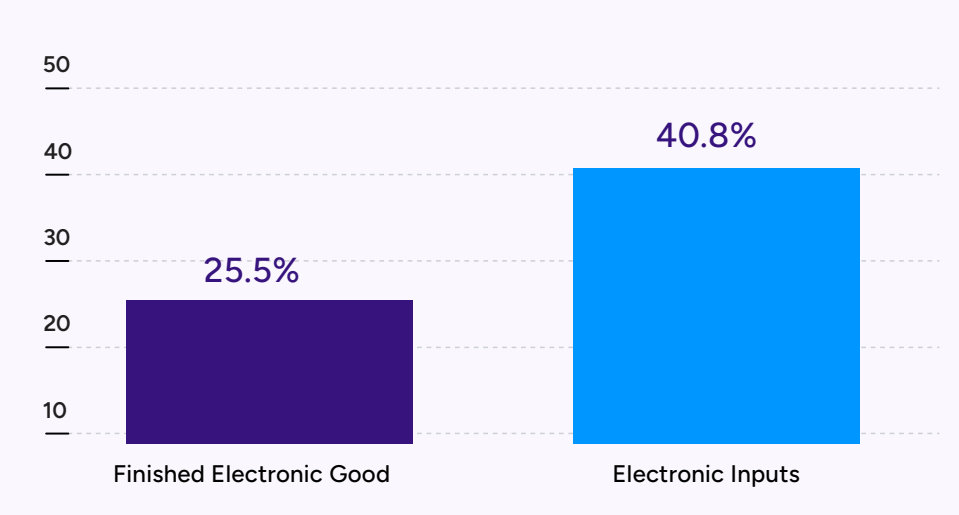
Changing Patterns in U.S. Imports

The structure of U.S. imports reveals several important shifts. Two-thirds of total electronics imports in 2023 were finished goods, while one-third were inputs. This breakdown has remained fairly consistent in recent years, but the sources of those imports have changed notably. Some traditional suppliers have declined in relative importance, while others, particularly in Southeast Asia, have gained share as companies adjust sourcing strategies in response to tariffs, cost pressures, and geopolitical risk.

Between 2017 and 2023, the fastest growth in U.S. imports came from electronics inputs, which rose by 41%. Finished electronics imports grew more slowly, increasing by 25% over the same period. This suggests U.S. production activity, particularly in downstream industries, is still reliant on a robust and diverse supply of global components. Much of this input growth has come from a changing mix of suppliers, reflecting broader shifts in global production and sourcing patterns. The trend highlights not only the

The U.S. electronics supply chain stretches far beyond its borders, built on the movement of parts, not just products.

Growth in U.S. Electronics Imports, 2017-2023





structural dependence of U.S. industry on imported inputs but also the importance of policies that support continued access to cost-competitive, critical technologies across a widening supplier base.

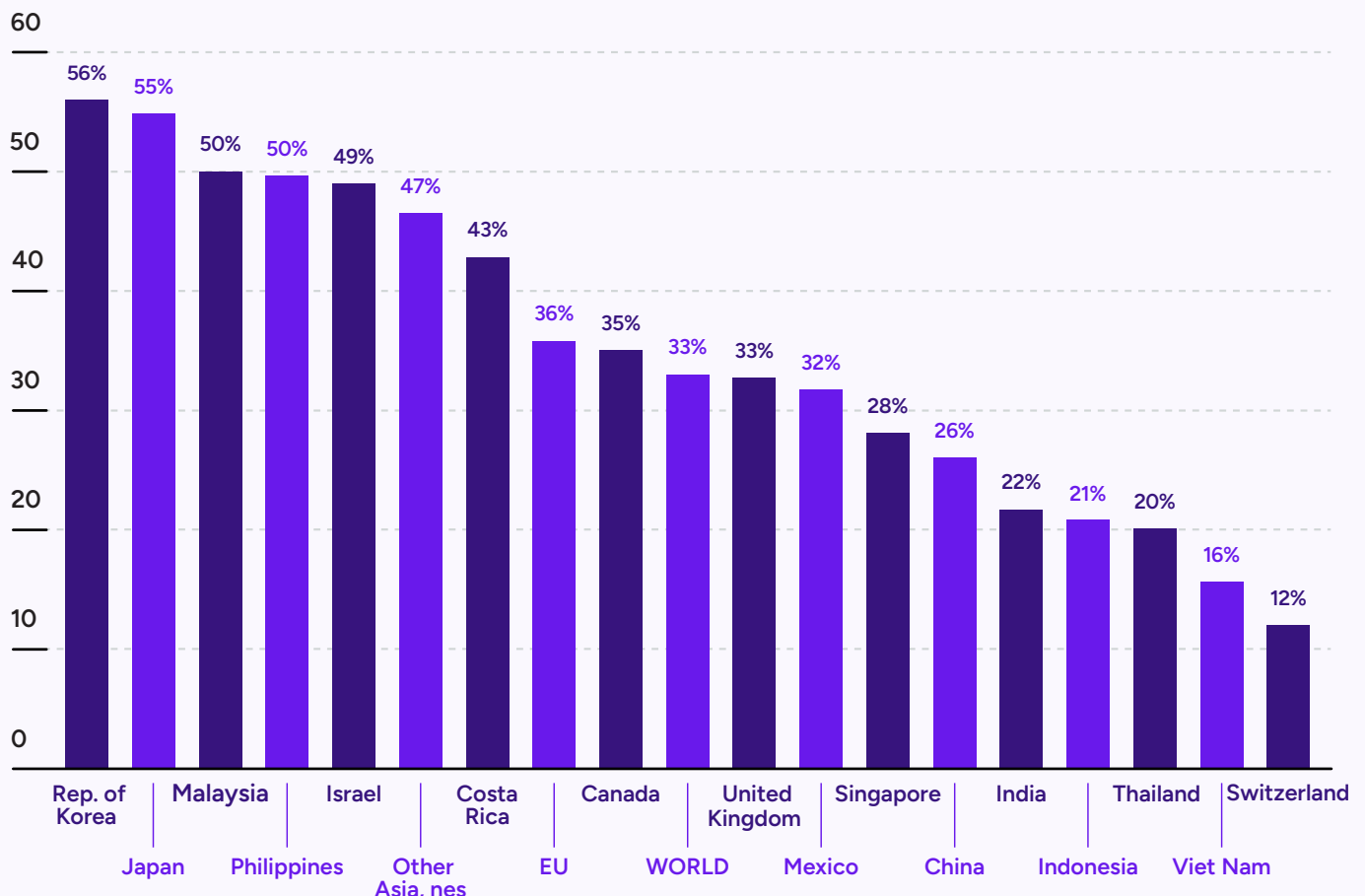
Other country-specific trends also reveal how U.S. sourcing has evolved. U.S. imports from Rep. of Korea and Japan consist largely of inputs, while imports from Viet Nam and Thailand are dominated by finished electronics. This distinction reflects the role that each country plays in the broader supply chain and highlights how U.S. firms are building region-specific strategies based on cost, capacity, and component specialization.

The Impact of Section 301 Tariffs

Trade policy has had a significant impact on U.S. electronics sourcing, particularly the Section 301 tariffs imposed on imports from China beginning in 2018. These tariffs applied to a wide range of electronics inputs and finished products. While some high-profile items such as smartphones and laptops were excluded, other electronics goods were targeted, with tariffs ranging from 7.5% to 25%.

The response from U.S. companies was swift. From 2017 to 2023, China's share of U.S. finished electronics imports fell from 47% to 27%, driven by a \$49 billion drop in the value

Inputs Share of Total U.S. Electronics Imports

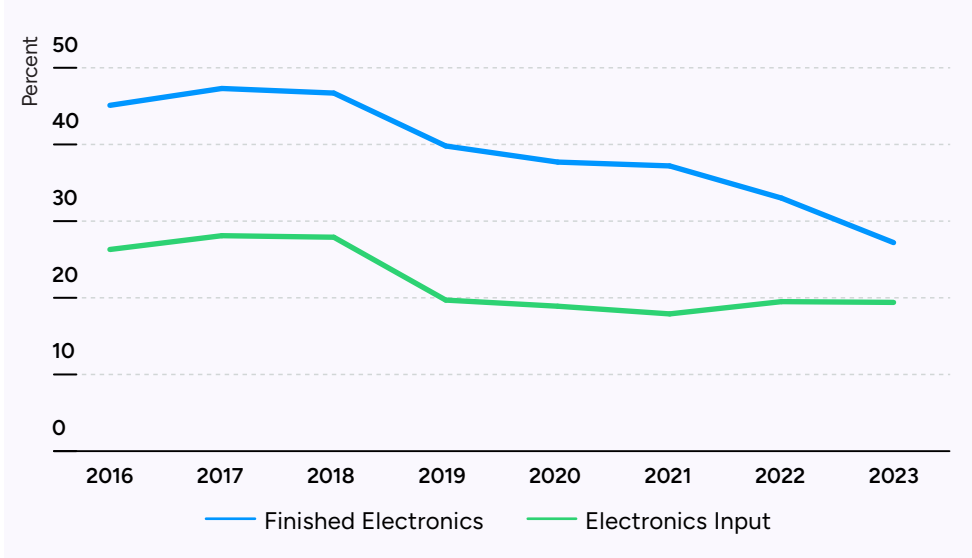


of shipments from China. At the same time, Viet Nam's share grew from 2.6% to 10%, making it one of the largest beneficiaries of the sourcing shift. Mexico also gained ground, increasing its share of U.S. finished electronics imports by 1.8 percentage points over the same period, reflecting its growing

remains a critical node in the global electronics supply chain, even as production footprints evolve.

The Taiwan region and other parts of Asia gained the most market share for inputs during this period, driven largely by their strengths in semiconductors,

China's Share of U.S. Electronics Imports



Europe's electronics economy is powered by a blend of internal trade and strategic global sourcing.

role as a regional electronics manufacturing hub.

For inputs, the pattern was more stable. China's share of U.S. electronics input imports dropped from 28.1% in 2017 to 19.4% in 2023. However, the actual value of those imports declined by just 2.5%. This suggests that while sourcing diversification did occur, many U.S. manufacturers continued to rely on Chinese components even as they shifted final assembly elsewhere. The small drop in value underscores the persistence of upstream dependencies and the difficulty of replacing specialized input suppliers. Unlike final assembly, which can be more easily relocated, input sourcing is tied to established relationships, technical and quality standards, and economies of scale. As a result, China

passive components, and high-value subassemblies. The Taiwan region's rise, in particular, reflects its specialization in advanced fabrication and packaging processes critical



The key question is not whether the United States can produce more electronics at home, but whether it can secure stable and diversified access to the inputs that make production possible for strategically important technologies.

to U.S. industries. This regional shift highlights the increasing concentration of upstream production in East and Southeast Asia, where mature ecosystems and technical expertise support efficient, large-scale component manufacturing.

Meanwhile, U.S. imports of inputs from Mexico also rose, increasing nearly 56% from 2017 to 2023 and adding 1.8 percentage points, suggesting that Mexico is playing a modest but growing role in supplying components for North American production. While Mexico remains more prominent in final assembly, its rising input trade indicates potential for deeper integration into upstream electronics supply chains over time.

Strategic Implications

The U.S. experience highlights both the power and the limits of trade policy. Tariffs have clearly altered sourcing patterns, particularly for finished goods. Yet they have not significantly reduced U.S. dependence on global supply chains,

especially for inputs. In fact, many of the countries that absorbed production from China, such as Viet Nam, India, and The Taiwan region, continue to rely heavily on Chinese inputs themselves.

This layered dependency creates both opportunities and challenges. On one hand, the United States has an opportunity to deepen ties with a broader set of suppliers across Asia and North America. On the other hand, it cannot isolate itself from global input flows without jeopardizing domestic production capabilities in key industries or access to needed finished goods.

Looking ahead, new rounds of tariffs, shifting geopolitical alliances, and domestic investment initiatives such as the CHIPS and Science Act will shape the trajectory of U.S. engagement in the electronics trade. The key question is not whether the United States can produce more electronics at home, but whether it can secure stable and diversified access to the inputs that make production possible for strategically important technologies.



EUROPEAN UNION: A Stable Trade Bloc Balancing Integration & Dependency

The European Union is one of the largest electronics markets in the world, both as a consumer and as a production hub. In 2023, the EU imported approximately \$324 billion in finished electronics and \$224 billion in electronics inputs, bringing total electronics-related imports close to \$550 billion. These volumes place the EU just behind the United States and China in overall trade activity, underscoring the region's importance in the global electronics ecosystem.

The European Union not only trades extensively with external partners but also maintains a dense web of internal trade across its single market. This intra-EU trade provides a unique window into how deeply member countries rely on one another for both components and finished goods, and how regional integration has shaped the structure of European electronics production.

Intra-EU trade accounts for a substantial share of the European Union's electronics activity, underscoring the region's high degree of internal integration. In 2023, EU member states imported approximately \$252 billion in finished electronics from one another, up 35.3% from 2017. Intra-EU imports made up nearly 44% of all EU finished electronics imports, reflecting the strength of regional production networks and consumer markets. The trend



is mirrored on the inputs side, where intra-EU trade grew by over 43% from 2017 to 2023, reaching nearly \$213 billion and comprising close to 49% of all EU input imports. This high level of intra-regional trade reflects the EU's ability to develop and maintain complex, multi-country production systems. Components and subassemblies frequently move across borders for intermediate processing before reaching final assembly, often within the single market. Despite growing global sourcing from countries like China and Viet Nam, the EU retains some degree of self-reliance, particularly for upstream inputs, suggesting internally integrated electronics supply chains are both an economic asset and a buffer against global supply shocks.

Unlike the United States, the EU's electronics trade strategy has remained relatively stable. It has avoided large-scale trade disruptions, taken a measured approach to industrial policy, and maintained deep trade relationships with a wide range of partners. This stability has allowed the EU to continue sourcing efficiently while preserving flexibility in supply chain management.

Europe's electronics economy is powered by a blend of internal trade and strategic global sourcing.

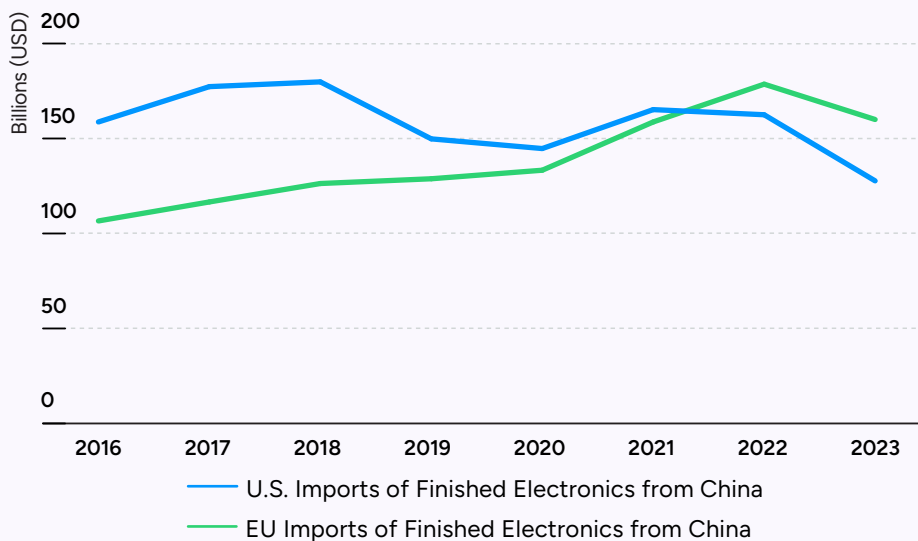
A Heavy Reliance on China

This U.S.-EU contrast is also visible in the performance of rising Asian suppliers. Viet Nam's share of EU imports declined slightly between 2017 and 2023, even as its share of U.S. imports surged. This suggests that some suppliers are prioritizing the U.S. market in response to shifting demand, while

especially as global buyers seek to diversify beyond China and deepen engagement with South Asia.

Türkiye has also experienced notable growth, albeit from a smaller base. Between 2017 and 2023, EU imports from Türkiye rose by nearly 50%, increasing from \$1.7 billion to over \$2.5 billion. Türkiye's share of EU finished electronics imports grew modestly from 0.7% to 0.8%, reflecting its expanding

Imports of Finished Electronics from China: EU vs. U.S.



the EU continues to source more heavily from established suppliers, particularly China.

At the same time, the EU has also expanded imports from alternative partners, particularly India. EU imports of finished electronics from India surged 443%, rising from \$1.1 billion in 2017 to \$5.7 billion in 2023. India's share of EU finished electronics imports grew from 0.4% to 1.8%, the largest percentage point gain among all non-EU suppliers. This growth signals India's emergence as a credible alternative in the global electronics supply chain,

role in supplying cost-competitive products. This growth is supported by geographic proximity, customs union benefits, and increasing investment in regional manufacturing capabilities.

Input Trade and Shifting Dynamics

The EU imports fewer electronics inputs than the United States or China, but it remains a key buyer in several critical categories. China is the EU's top supplier of inputs, and its share of EU input imports has grown significantly, from 30.1% in 2017 to



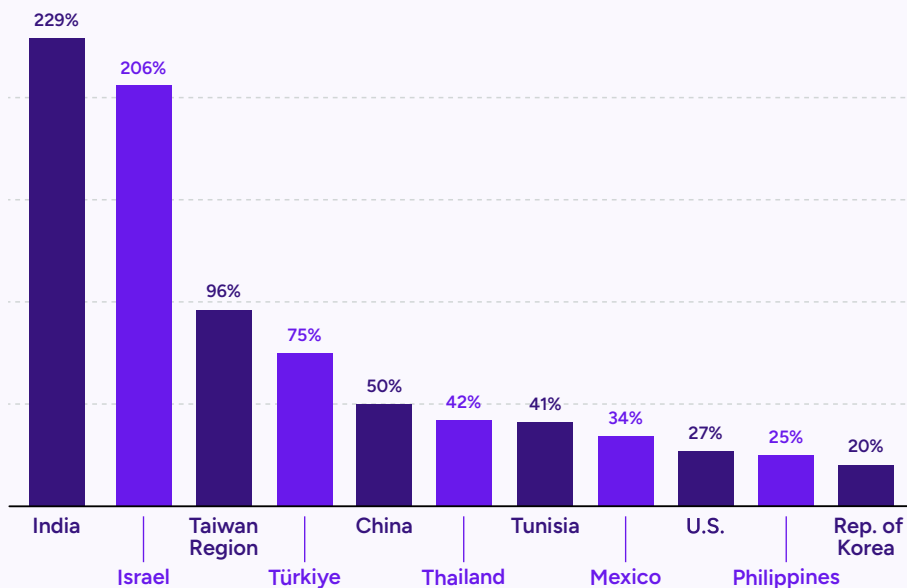
38.1% in 2023. This increase reflects China's expanding role in supplying components not just to its own manufacturing ecosystem but also to high-value sectors within Europe.

Meanwhile, other major suppliers, including the United States, Japan, Malaysia, and Rep. of Korea, have seen their share of EU input imports decline over the same period. The Taiwan region is the notable exception, having expanded its share, likely due to its strength in

2023, reaching \$5.6 billion. Morocco's share rose modestly from 2.2% to 2.5%, but the consistent growth underscores its rising importance as a nearshore partner, especially for cable assemblies, wiring harnesses, and low- to mid-value components. Its proximity, competitive labor costs, and improving infrastructure make it a valuable part of the EU's supply chain diversification strategy.

Other notable gains came from Türkiye, which grew its input shipments by 95% and increased its share from 1.3% to 1.8%, and Serbia, which doubled its share to 1.4%, reflecting greater regional integration. Israel also posted exceptional growth, with shipments increasing more than fivefold from 2017 to 2022, though slightly declining in 2023. Collectively, these developments suggest that while Asia continues to lead in overall volume, proximity, political alignment, and specialization are enabling alternative suppliers to gain traction in the EU electronics input market.

Fastest Growing EU Electronics Suppliers



semiconductors and advanced packaging. Despite this concentration in China and the Taiwan region, the EU continues to maintain a more diverse sourcing base than either China or the United States, which could help insulate it from future supply chain shocks.

Although China remains the dominant supplier of electronics components to the EU, several neighboring and emerging economies are gaining ground. One standout is Morocco, which increased its electronics input shipments by 62% between 2017 and

Strategic Implications

The European Union's role in global electronics trade reflects the advantages of a large, unified market with substantial production capacity distributed across several member states. Countries such as Germany, the Netherlands, and France support robust domestic industries in sectors including automotive electronics, medical devices, industrial automation, and telecommunications.

However, the EU's continued reliance on China for both inputs and finished electronics introduces strategic vulnerabilities. Recent geopolitical tensions and growing concerns over supply chain concentration have spurred internal discussions about building greater autonomy and resilience. Initiatives like the

European Chips Act are designed to strengthen domestic capacity, particularly in high-value areas such as semiconductor fabrication and advanced packaging.

At the same time, the EU has taken a more cautious approach to trade policy than some of its global counterparts. Unlike the United States, it has refrained from imposing broad electronics-related tariffs or launching aggressive reshoring campaigns. This policy stance helps maintain short-term trade stability, but it may limit the EU's ability to meaningfully reduce long-term dependence on external suppliers. In practice, the EU has allowed much of its domestic electronics manufacturing base to erode, with a growing number of printed circuit

board and electronics assembly firms shutting down. As a result, the region remains heavily reliant on Asia, even as it pursues greater strategic autonomy.

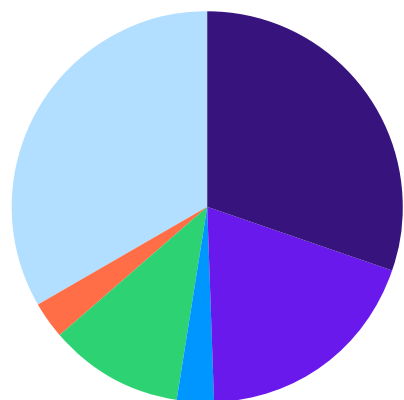
The EU has emerged as a consistent and strategically important participant in the global electronics economy. Its demand is substantial and growing, and it benefits from a relatively diverse supplier base. Yet its trade flows remain heavily shaped by China's central role in the supply chain. As the EU looks to reduce external exposure and boost internal capacity, its ability to balance resilience with openness will determine how successfully it adapts to future disruptions in global electronics trade.

Strategic autonomy starts with strategic sourcing.

EU IMPORTS OF ELECTRONICS INPUTS

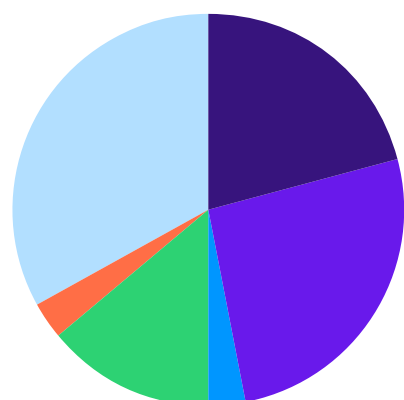
MARKET	IMPORT VALUE, 2023 (USD BILLIONS)	CHANGE IN IMPORTS VALUE, 2017-2023 (USD BILLIONS)	CHANGE IN IMPORTS 2017-2023	SHARE OF GLOBAL IMPORTS, 2023	CHANGE IN SHARE OF GLOBAL IMPORTS, 2017-2023
INTRA-EU	212.6	64.3	43.3%	94.8%	-0.4%
WORLD (ex EU)	224.2	68.4	43.9%	100%	N/A
China	85.4	38.5	82.1%	38.1%	8.0%
U.S.	19.7	2.5	14.2%	8.8%	-2.3%
Taiwan region	17.2	8.4	96.6%	7.7%	2.1%
Japan	13.4	0.4	3.4%	6.0%	-2.3%
Malaysia	11.4	0.2	1.6%	5.1%	-2.1%
Rep. of Korea	10.3	1.1	11.5%	4.6%	-1.3%
United Kingdom	6.3	(3.6)	-36.8%	2.8%	-3.6%
Thailand	6.0	2.6	78.5%	2.7%	0.5%
Morocco	5.6	2.2	62.4%	2.5%	0.3%
Switzerland	5.5	0.2	3.6%	2.4%	-1.0%
Viet Nam	5.2	1.5	40.5%	2.3%	-0.1%
Philippines	5.0	1.6	46.1%	2.2%	0.0%
Israel	4.6	3.7	432.4%	2.1%	1.5%
Tunisia	4.0	1.3	48.3%	1.8%	0.1%
Türkiye	4.0	1.9	95.4%	1.8%	0.5%

TOP MARKETS FOR CHINESE FINISHED ELECTRONICS (2017)



33% OTHER 30% U.S.
3% MEXICO 19% EU
11% INTRA-ASIA 3% INDIA

TOP MARKETS FOR CHINESE FINISHED ELECTRONICS (2023)



33% OTHER 21% U.S.
3% MEXICO 26% EU
14% INTRA-ASIA 3% INDIA

CHINA: A Global Electronics Leader Built on Global Inputs

China is both the engine and the crossroads of global electronics trade. In 2023, it imported nearly \$800 billion in electronics-related goods, including \$630 billion in electronics inputs and nearly \$163 billion in finished electronics. China is the largest importer of electronics inputs and the largest supplier of finished electronics. No country plays a more central role in connecting upstream components to downstream production at scale. [Insert Figure 7]

Figure 7: Top Markets for Chinese Finished Electronics

However, China's dominance is not self-contained. Its position in the global supply chain depends on massive and sustained inflows of components from other countries. In recent years, this reliance has become more visible as trade data shows that China now consistently imports more electronics inputs than it ships in finished electronics.

The Central Role of Inputs

The scale of China's input demand is unmatched. In 2023, its \$630 billion in electronics input imports exceeded the combined total of the next three largest input importers: the United States, the European Union, and Singapore. China's share of global electronics input imports exceeds 25%, making it the single most important market for upstream electronics producers.

This pattern reflects the country's function as the primary global hub for electronics assembly. Components sourced from the Taiwan region, Rep. of Korea, Japan, and other countries arrive in China for final integration

and testing. Finished products are then shipped to global markets or consumed domestically.

Since 2020, the value of China's electronics input imports has consistently exceeded the value of its outbound shipments of finished electronics. This shift suggests a growing complexity in Chinese production, increased consumption of electronics within China, and a greater role in refining and assembling higher-value intermediate products.

China is not a major importer of finished electronics compared to its role as an input buyer. In 2023, the country imported \$163 billion in finished electronics, about one-fourth the value of its input imports. Finished goods imports are largely used to fill specific market needs or support domestic innovation and benchmarking.

The European Union is China's top source of finished electronics, accounting for 20% of the total. The United States remains an important supplier as well, despite ongoing trade tensions. Interestingly, U.S. finished electronics shipments to China have held up better than Japan's, suggesting that multiple factors beyond tariffs are influencing sourcing decisions.

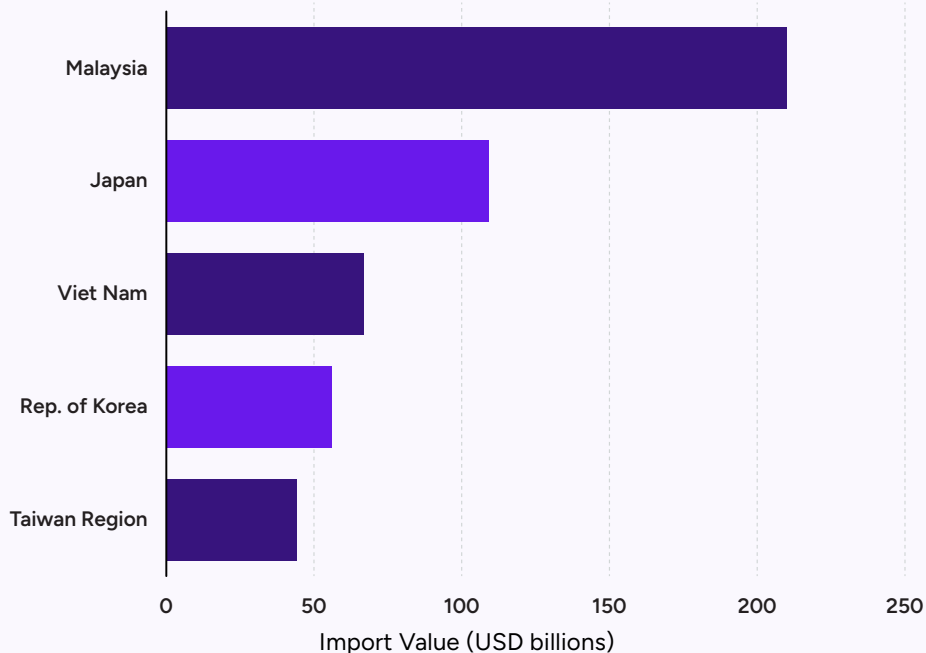
China's Most Critical Supplier: The Taiwan Region

Among all trading partners, the Taiwan region has become China's most important source of electronics inputs. In 2023, China imported \$210 billion in electronics components from the Taiwan region, accounting for one-third of its total input imports. This share has increased steadily from just under 27% in 2017.

This close relationship is largely driven by the Taiwan region's leadership in advanced electronics manufacturing. High-performance chips and related technologies are essential to modern electronics, and China relies heavily on the Taiwanese suppliers to sustain its

such as Rep. of Korea, Japan, and Malaysia has declined in share and, in some cases, also in value. These shifts reflect a broader rebalancing in China's sourcing strategy as it integrates with a wider set of regional input providers.

China's Electronics Input Imports by Source



industrial base. Strong demand for semiconductors and specialized components has reinforced this economic interdependence, even as both economies pursue greater technological self-sufficiency.

Viet Nam is another rapidly growing input supplier to China. Between 2017 and 2023, Chinese imports of electronics components from Viet Nam rose 175%, highlighting the deepening ties between the two countries beyond final assembly. By 2023, Viet Nam accounted for more than 10% of China's electronics input imports.

At the same time, China's reliance on inputs from traditional suppliers

Strategic Implications

China's strategic position in the global electronics trade has come under pressure in recent years due to several factors, including rising labor costs, export controls on advanced technologies, and efforts by other countries to reduce reliance on Chinese manufacturing.

Even so, China remains deeply embedded in global supply chains. Its firms continue to supply electronics components to manufacturers in third countries, particularly those now assembling finished products for Western markets. As production



China's position in the value chain remains essential as a supplier of critical components.



33%

A third of China's electronics input imports came from the Taiwan region.

shifts to places like Viet Nam or India, Chinese input suppliers remain active upstream, maintaining influence over how and where electronics are produced.

This pattern highlights a key reality of global electronics production: moving final assembly out of China does not necessarily diminish dependence on Chinese inputs. As long as Chinese companies hold their position in the upstream component market, they will continue to shape both the structure and the stability of global supply chains.

China has built the world's most comprehensive electronics manufacturing base, supported by unmatched access to global inputs. While its leadership in finished electronics shipments is widely acknowledged, its role as the largest importer of electronics components is equally significant. This dual position makes China both a global supplier and a critical customer for component manufacturers across Asia and beyond. As trade dynamics and industrial policy debates evolve, understanding China's demand for inputs is essential to anticipating future changes in the global electronics economy.

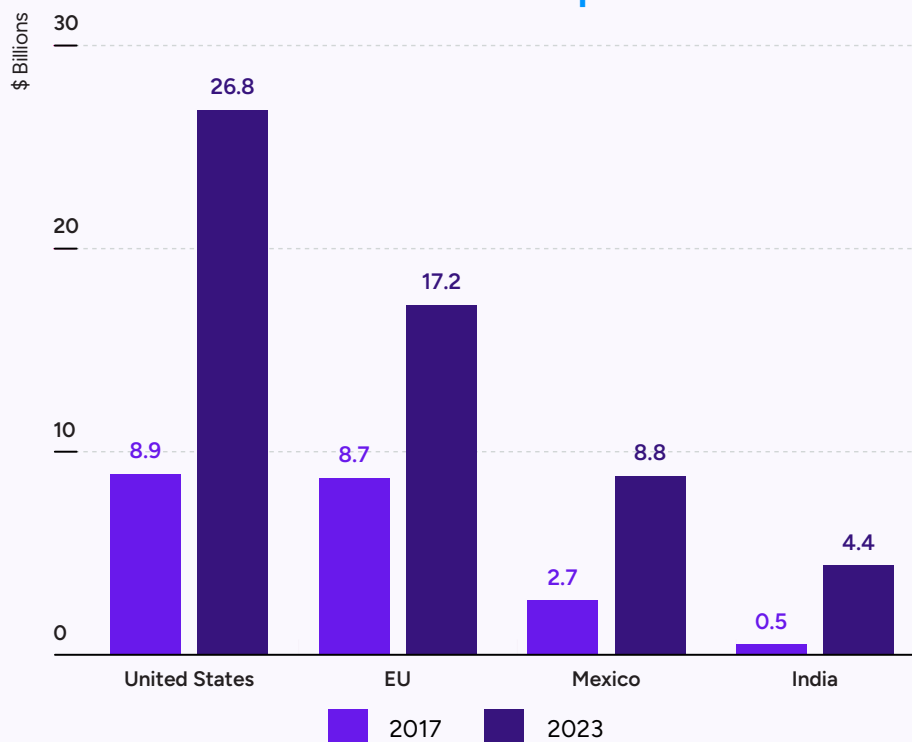
THE TAIWAN REGION: An Indispensable Supplier Powering the Global Electronics Backbone

The Taiwan region plays a uniquely strategic role in global electronics trade, not as a dominant consumer or a high-profile assembler, but as a critical supplier of both finished goods and essential components. While its import patterns have largely tracked the global average, its growing importance as a source of electronics imports for other countries underscores the Taiwan region's expanded influence across both upstream and downstream segments of the supply chain.

Between 2017 and 2023, the value of finished electronics shipped from the Taiwan region to global markets more than doubled, rising from \$41 billion to \$86 billion. Its role in supplying electronics inputs grew even faster, with shipments increasing from \$211 billion to \$391 billion, an 85.6% gain that positions the Taiwan region as the second-largest global source of electronics inputs, just behind China.

This performance far outpaces the global average. While the Taiwan region's own imports of electronics have grown at a pace similar to the global trend, its role as a supplier has expanded much more rapidly. Its shipments of finished goods have grown five times faster than the world average, and its component shipments more than twice as fast. These figures make clear that the Taiwan region is not simply participating in global supply chains, it is helping to accelerate and redefine them.

Taiwan Region Growth in Shipments of Electronic Inputs



Input-Driven Import Growth

The Taiwan region's total electronics imports rose from \$84 billion in 2017 to \$114 billion in 2023, with more than 80% of that growth coming from increased imports of inputs. Imports of finished electronics rose more modestly, from \$21 billion to \$25 billion. Over that same period, the Taiwan region's sourcing of finished goods diversified. While China remained the largest supplier, its share of the Taiwan region's finished electronics imports declined slightly, from 46.4% in 2017 to 43.5% in 2023. At the same time, imports from the United States and the EU grew by 44% and 36%, respectively, suggesting a subtle but important rebalancing of supply. This shift reflects the Taiwan region's efforts to strengthen trade relationships with technologically advanced economies

Countries that serve as major suppliers of finished electronics to global markets are often among the most reliant on international input flows.



The Taiwan region is both a pillar of electronics supply and a prime example of global interdependence.

and diversify sources of high-value components, reducing overexposure to any single supplier in sensitive areas of the electronics market.

Asia-Centric Input Reliance

The Taiwan region's strength as a source of electronics imports for other countries is underpinned by its deep integration with regional supply networks. China accounts for more than a third of the Taiwan region's electronics input imports, while Rep. of Korea has overtaken Japan as its second-largest supplier, increasing its share to over 21% by 2023. This shift reflects the rise of Korean firms in semiconductor and display technologies, as well as the evolving specialization within Asia's electronics ecosystem.

Despite its growing role in global supply chains, the Taiwan region's

own production remains heavily dependent on imported components, particularly high-value parts from China, Rep. of Korea, and Japan. This reinforces a broader pattern observed throughout the electronics industry: countries that serve as major suppliers of finished electronics to global markets are often among the most reliant on international input flows.

Strategic Implications

The Taiwan region's importance in the global electronics supply chain is difficult to overstate. It serves as a linchpin supplier to both China and the broader international market, particularly in semiconductors. At the same time, the Taiwan region's role is uniquely exposed to geopolitical risk. Its proximity to, and economic integration with, China creates a paradox of deep interdependence alongside growing strategic uncertainty.

As countries seek to reduce reliance on Chinese manufacturing, many are simultaneously deepening their dependence on Taiwanese components. This bifurcated sourcing strategy underscores both the strategic centrality and inherent fragility of the Taiwan region's position in the global electronics landscape.

The Taiwan region reflects the structural dynamics observed throughout the industry. It is both a beneficiary of global demand and a foundational pillar of electronics production. It remains heavily reliant on imported inputs while playing an irreplaceable role as a supplier to the world. As efforts to reroute or localize production continue, the Taiwan region's role is likely to become even more critical, and at the same time, even harder to substitute.

Intra-Asia trade helps drive the global electronics ecosystem.

INTRA-ASIA TRADE: Deep Integration Driving Global Supply Chains

While China, the United States, and the European Union often dominate discussions of global electronics trade, the true foundation of the supply chain lies in Asia’s internal trade network. In 2023, the top Asian economies imported nearly \$1.7 trillion in electronics-related goods from other Asian countries. Of this total, more than \$1.3 trillion, or nearly 76%, consisted of electronics inputs and components. The scale of this trade underscores Asia’s central role as both the production base and coordination hub for the global electronics ecosystem.

Asian countries source the majority of their electronics imports from within the region. In 2023, 90% of all electronics input imports and 74%

of finished electronics imports by major Asian economies came from other Asian partners. Countries such as Viet Nam, Rep. of Korea, Japan, Thailand, Singapore, and Malaysia are deeply interconnected, forming an integrated network in which components and subassemblies move rapidly across borders before final assembly and global distribution.

This degree of regional self-sufficiency in sourcing is unmatched elsewhere. In North America and Europe, electronics supply chains are far more dependent on goods arriving from Asia. By contrast, Asia has built a regionally dense supply structure that enables just-in-time manufacturing, fast product turnover, and rapid adoption of new technologies.

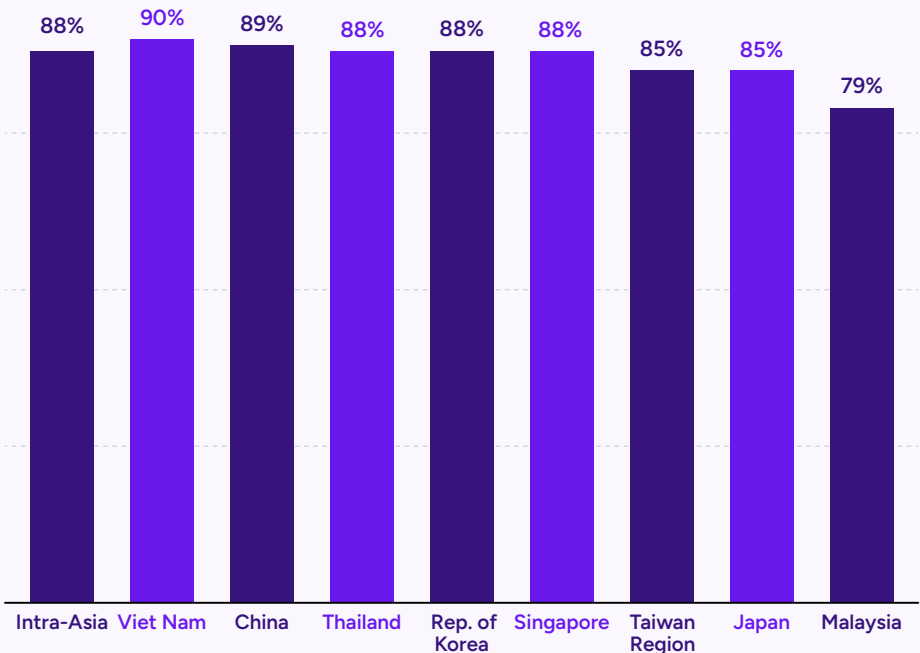
Between 2017 and 2023, intra-Asian input trade grew by 39.6%, more than double the growth rate of intra-Asian trade in finished electronics, which expanded by 17.3%. This divergence reflects the region’s increasing specialization and the rising importance of upstream components in global production.

Several countries saw particularly strong growth in input imports from within Asia. Viet Nam’s intra-Asian input imports rose by more than 80%, Rep. of Korea’s by 59%, Thailand’s by 57%, and the Taiwan region’s by nearly 90%. These gains suggest not only stronger regional integration, but also rising production capacity, as increased imports of components are closely linked to growth in finished electronics output.

China’s Evolving Role Within Asia

China remains the largest participant in intra-Asian electronics trade, but its dominance is slowly shifting. In 2023, China imported \$563 billion in

Share of Electronic Inputs Imported Intra-Asia





electronics inputs from other Asian countries, representing 88% of its total input imports. While still the largest market, China's share of intra-Asian electronics trade has declined since 2017 in both finished goods and inputs. Additionally, countries such as Viet Nam, Malaysia, and Taiwan have become more prominent in intra-Asian flows, reflecting a rebalancing of production and sourcing within the region.

These trends suggest that Asia's electronics supply chain is becoming more multipolar. Although China remains central, the distribution of capabilities across the region has expanded. This allows more countries to participate meaningfully in electronics manufacturing, both as component suppliers and final assemblers.

Strategic Implications

Intra-Asian trade is not just large; it is structurally essential to the global electronics economy. Many of the finished goods shipped to the United States and Europe are assembled in Asia using components sourced from within the region. As Western countries pursue supply chain diversification or aim to reduce reliance on China, continued access to Asian-made inputs and regional assembly partners will remain critical.

The high concentration of component production and intermediate trade within Asia means that any disruption, whether from natural disasters, regulatory shifts, or geopolitical friction, can trigger cascading effects throughout the global electronics market. The resilience of global supply chains depends heavily on the stability and coordination of intra-Asian trade flows.

Asia is not merely a production zone; it functions as the core infrastructure of global electronics manufacturing. The region's dense integration enables high-volume, high-speed, and high-complexity production at a scale unmatched anywhere else. As countries reassess their industrial strategies, a deep understanding of intra-Asian trade dynamics will be essential for developing realistic, effective approaches to supply chain resilience and competitiveness.

MEXICO: Rising as a Key Node in the Western Electronics Ecosystem

Mexico plays a unique role in the global electronics supply chain. As a top-seven importer of both finished electronics and electronics inputs, it serves as both a regional manufacturing hub and an increasingly important link in North America's technology ecosystem. Its proximity to the United States, integration through the USMCA agreement, and relatively low labor costs make it an attractive location for final assembly and component production.

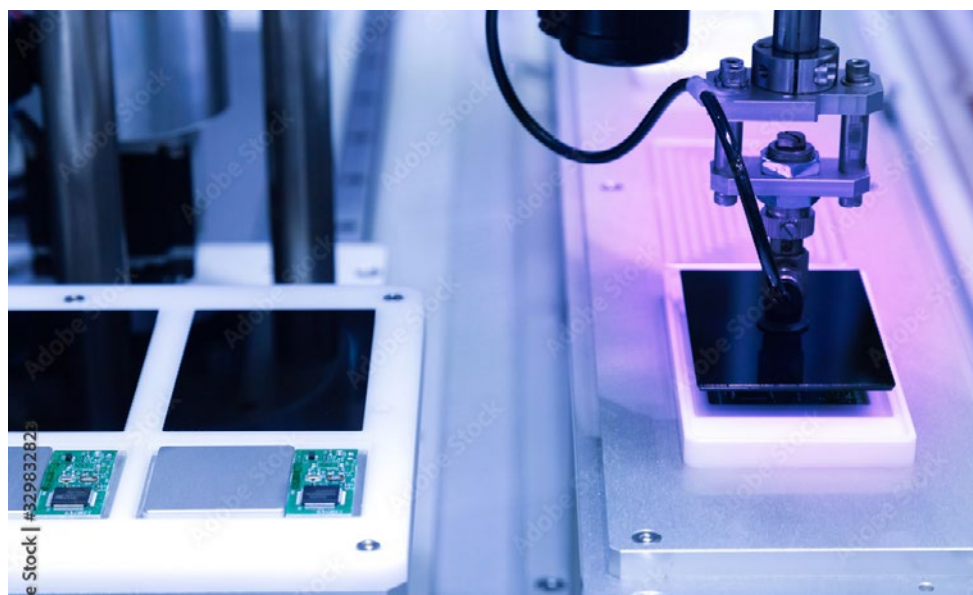
In 2023, Mexico imported approximately \$150 billion in electronics-related goods. This

The Changing Nature of China's Role in Mexico's Electronics Trade

As U.S. tariffs on Chinese electronics took effect beginning in 2018, some policymakers and analysts expressed concern that Mexico could become a conduit for Chinese products. The theory suggested that Chinese goods might enter Mexico, undergo minimal processing, and then be exported to the United States duty-free under the USMCA.

However, trade data does not support this concern. Between 2017 and 2023, Mexico's finished electronics imports grew by 23%, from \$48 billion to \$59 billion. Over the same period, imports from China increased by only 8%, and China's

This pattern suggests that Mexico is diversifying its sourcing rather than increasing its reliance on China. If transshipment were widespread, China's share of Mexico's imports would likely have increased, not declined.



included \$93 billion in inputs and \$59 billion in finished electronics. These figures reflect strong domestic demand, robust production for re-export, and growing interest in nearshoring strategies by U.S. and international firms.

share of Mexico's finished electronics imports declined more than that of any other major supplier. Meanwhile, other Asian countries such as Viet Nam, Thailand, and Rep. of Korea increased their share of Mexico's imports.

Far from a conduit, Mexico is emerging as a strategic hub for electronics manufacturing.

Mexico's electronics input imports followed a similar trend, rising from \$62 billion in 2017 to \$93 billion in 2023, a 52% increase. During that time, imports from China rose by 33%, but China's share of total input imports declined. The most notable growth came from other Asian economies, including the Taiwan region and Viet Nam, as well as from the European Union.

This pattern suggests that Mexico is diversifying its sourcing rather than increasing its reliance on China. If transshipment were widespread, China's share of Mexico's imports would likely have increased, not declined. As the United States shifted away from China and toward alternative suppliers, Mexico appears to have adopted a similar strategy. This broader sourcing strategy aligns with Mexico's efforts to expand its manufacturing base and establish itself as a more complete production hub. While China remains a major supplier, its relative importance is

decreasing in both finished goods and inputs.

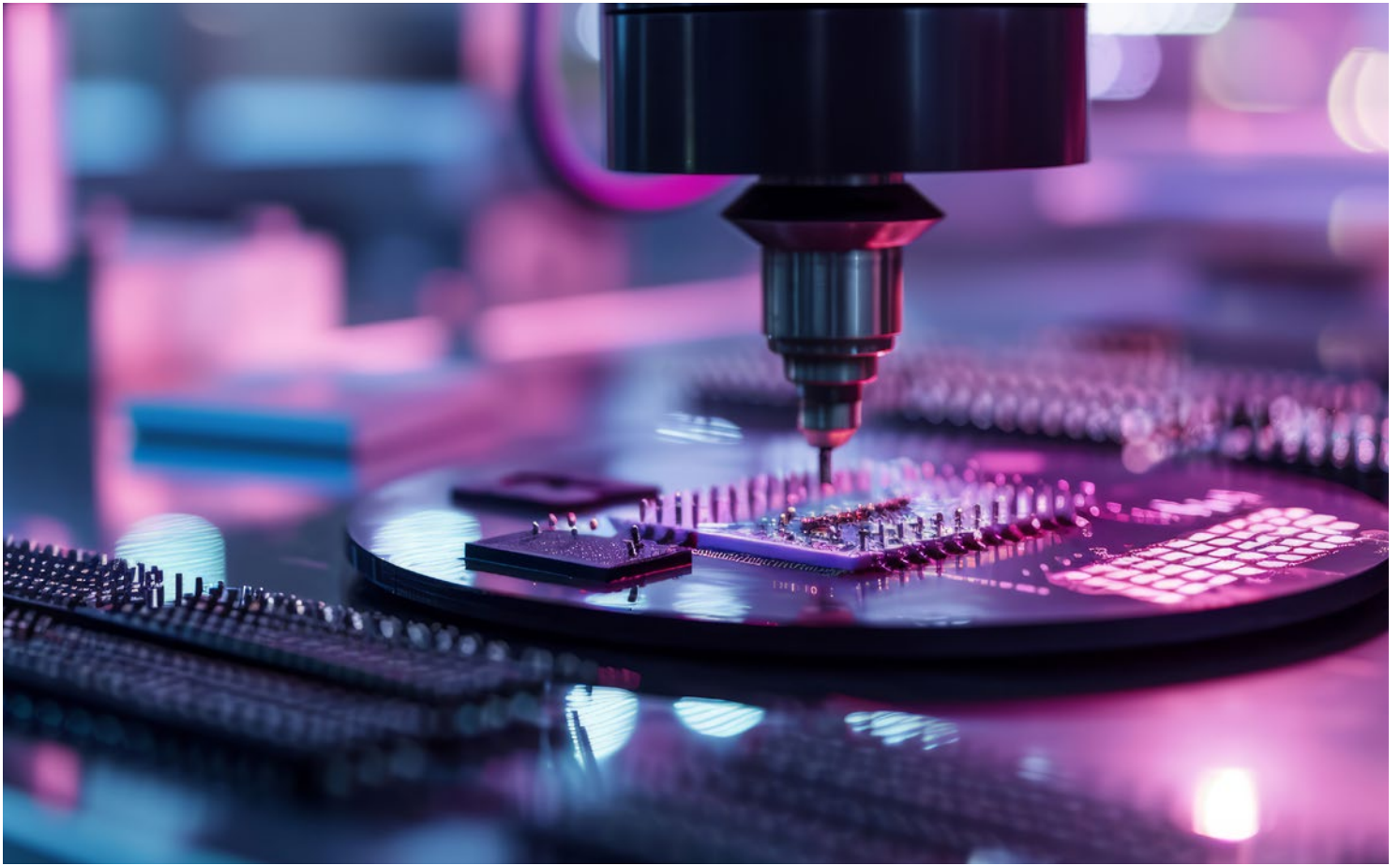
Integration with the U.S. Market

Mexico's role in the global supply chain is closely tied to its relationship with the United States. Many electronics components imported into Mexico are assembled into final products for export to the U.S. market. This includes consumer electronics, automotive systems, and industrial controls.

This regional integration offers advantages for both countries. For the United States, sourcing from Mexico reduces shipping times and supports geographic diversification. For Mexico, access to the large and stable U.S. market encourages continued investment in electronics manufacturing.

TOP SOURCES OF MEXICO'S ELECTRONICS INPUT IMPORTS

MARKET	IMPORT VALUE, 2023 (USD BILLIONS)	CHANGE IN IMPORTS VALUE, 2017-2023 (USD BILLIONS)	CHANGE IN IMPORTS 2017-2023	SHARE OF GLOBAL IMPORTS, 2023	CHANGE IN SHARE OF GLOBAL IMPORTS, 2017-2023
WORLD	93.5	31.9	0.0%	100%	-0.4%
China	28.6	7.1	-4.3%	30.6%	N/A
U.S.	19.0	3.9	-4.2%	20.4%	8.0%
Taiwan region	8.8	6.0	4.9%	9.4%	-2.3%
Malaysia	7.9	2.7	0.0%	8.4%	2.1%
EU	7.0	3.1	1.2%	7.5%	-2.3%
Rep. of Korea	5.9	2.1	0.1%	6.3%	-2.1%
Viet Nam	4.1	2.9	2.4%	4.4%	-1.3%
Japan	4.0	0.3	-1.7%	4.3%	-3.6%
Thailand	2.0	1.0	0.5%	2.1%	0.5%
Philippines	1.7	0.8	0.3%	1.8%	0.3%



Access to the U.S. market is Mexico's advantage, but its future depends on deeper capability and connectivity.

Unlike many of its Asian competitors, Mexico benefits from tariff-free access to the United States under USMCA. This gives it a structural edge in the North American market, particularly in categories subject to tariffs.

Strategic Implications

Mexico is well positioned to play a larger role in electronics manufacturing, particularly as U.S. firms seek to shorten supply chains and reduce exposure to geopolitical and logistical risks. However, concerns about transshipment should not obscure the data. Mexico is not acting as a pass-through for Chinese goods. Instead, it is steadily developing more diverse and sophisticated trade relationships, both within the region and globally.

To fully capitalize on this opportunity, Mexico will need to continue investing in infrastructure, workforce development, and supply chain transparency. These efforts are critical to strengthening its role as a trusted partner in the global electronics ecosystem.

Mexico's trade patterns reflect a country transitioning from a low-cost assembly destination into a more integrated and strategically relevant player in the electronics supply chain. While often analyzed through the lens of U.S. tariff policy, Mexico is actively pursuing its own sourcing diversification and increasingly importing components from a broader set of suppliers. Mexico, in short, is emerging as a central node in North American electronics manufacturing.

INDIA: A Rising Exporter Still Dependent on Global Inputs

India has long been viewed as a country with vast potential in electronics manufacturing. Its large population, low labor costs, and growing domestic demand have made it an attractive destination for global companies looking to diversify production beyond China. In recent years, that potential has begun to materialize. Between 2017 and 2023, India emerged as one of the fastest-growing sources of finished electronics imports globally. This rapid expansion has been built on a foundation of imported components.

In 2023, India's total electronics imports surpassed \$100 billion, up from \$60 billion in 2017. This growth was driven overwhelmingly by increased imports of electronics inputs, which now account for the majority of India's electronics trade. In 2023, inputs represented 60% of India's total electronics imports, reversing the balance from 2016, when finished goods made up the larger share.

While India has become a growing source of finished electronics for other countries, its own imports of finished goods have increased more slowly. From 2017 to 2023, finished electronics imports rose from \$35 billion to just under \$41 billion, an increase of less than 17%. China remains India's dominant supplier, accounting for nearly half of all finished electronics imported in 2023. Other key suppliers include the European Union, the United States, Viet Nam, and Japan.

Viet Nam, in particular, has experienced the fastest growth among India's suppliers. Imports from

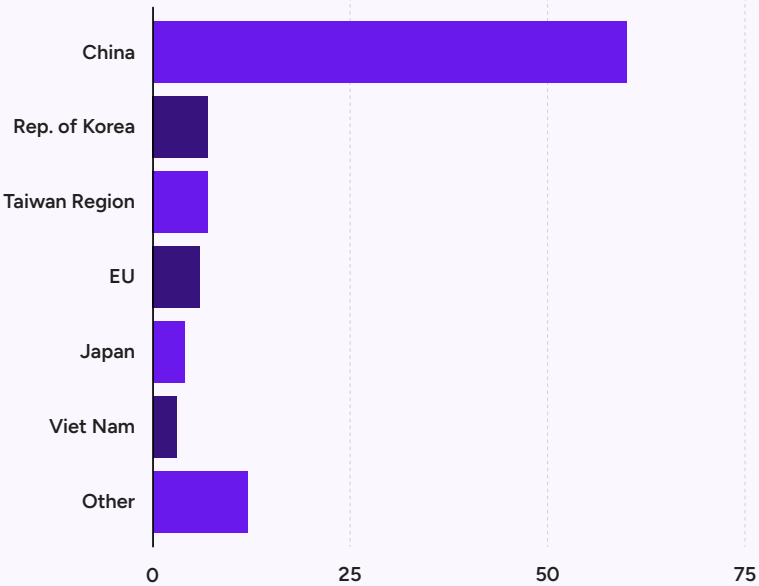
Viet Nam rose by more than 350% between 2017 and 2023, increasing from a low base to over \$2 billion. This growth reflects Viet Nam's expanding role in global electronics production and its deeper integration into regional supply chains.

Explosive Growth in Input Imports

India's most dramatic growth has occurred in electronics inputs. Between 2017 and 2023, input imports grew from \$27.4 billion to nearly \$61 billion, a 122% increase, the highest among all major electronics-importing countries during this period.

India's electronics boom is built on global inputs.

Share of India Electronic Inputs Imports



China has been the primary driver of this growth. In both 2017 and 2023, China accounted for approximately 60% of India's electronics input imports. The absolute value of these imports more than doubled, rising from about \$16.5 billion to \$36.6 billion. Despite political tensions and calls for reduced dependency, India

continues to rely heavily on Chinese components to support its domestic manufacturing ambitions.

Other top suppliers of inputs into India include Rep. of Korea, the Taiwan region, Japan, the European Union, and Viet Nam. While the EU and Japan have both seen the value of their component shipments to India increase, their share of India's total input imports declined between 2017 and 2023, reflecting faster growth from regional suppliers.

Manufacturing Growth Fueled by Global Inputs

India's role as a source of finished electronics for other countries has grown rapidly. Shipments rose from under \$6 billion in 2017 to more than \$28 billion in 2023, a 380% increase. This surge has positioned India as one of the fastest-rising players in global electronics trade. Much of the growth has been concentrated in smartphones and consumer electronics, fueled by global manufacturers establishing assembly operations in India.

India's manufacturing success has been built on deep integration into global supply chains, particularly through continued reliance on Chinese and East Asian inputs. This model mirrors the early stages of electronics growth in countries such as Viet Nam and Malaysia, where production for international markets was supported by imported components rather than local ecosystems.

India is also more dependent on a single supplier, China, than many of its peers. In 2023, approximately 60% of India's electronics input imports came from China, a share that has remained steady since 2017. This concentration introduces strategic



COMPLEXITY DRIVES TRADE: Why Electronics Supply Chains Depend on Global Integration

1. HIGHER COMPLEXITY, HIGHER VALUE

Today's most advanced technologies, including smartphones, EVs, and industrial systems, rely on high-value components. As product complexity increases, the value of the global trade behind them rises as well.

2. SPECIALIZATION FUELS EFFICIENCY

Global specialization allows manufacturers to produce high-precision components at scale, reducing costs and improving performance. This efficiency also increases global interdependence.

3. ASIA'S INTEGRATION ADVANTAGE

Asia's tightly connected supply networks, shaped by geographic proximity, aligned standards, and shared production strategies, enable fast, complex, and efficient assembly across borders.

4. THE GLOBAL NATURE OF RESILIENCE

Modern electronics manufacturing depends on globally distributed expertise and capabilities. True resilience comes not from isolation, but from strategic participation in international supply chains.



risk, especially as India seeks to move up the value chain and position itself as a global manufacturing hub. To reduce vulnerability and improve long-term resilience, India will need to strengthen its domestic component base and diversify its sourcing strategy, while continuing to engage with global networks.

Strategic Implications

India's industrial strategy has placed strong emphasis on expanding domestic capacity in electronics manufacturing. Government initiatives, including production-linked incentive (PLI) programs, aim to attract foreign investment and promote local production of both finished goods and critical components.

Despite these efforts, input dependency remains a significant constraint. As long as the majority of components are imported, India's manufacturing base will remain exposed to global supply chain disruptions and trade

frictions. Reducing this reliance will require sustained investment in semiconductor fabrication, precision engineering, and other upstream industries.

India also faces infrastructure and logistics challenges that may slow its transition from final assembler to component producer. Labor cost advantages alone will not be enough to compete with more advanced manufacturing ecosystems in East and Southeast Asia.

India's rapid rise as a source of finished electronics marks a meaningful shift in the global supply chain. It has emerged as a credible alternative for final assembly, particularly for global brands seeking to diversify beyond China. However, this growth remains heavily reliant on imported inputs, especially from China and other Asian suppliers. To move up the value chain and improve long-term resilience, India will need to enhance its domestic capabilities in component production while maintaining open and diversified access to international suppliers.

60%

Six out of every ten electronics parts imported into India come from China.

Global leadership
in electronics
doesn't come
from going it
alone, it comes
from plugging
into the system.

A GLOBAL SYSTEM WITH REGIONAL EXPRESSIONS

Across the global electronics trade, a consistent pattern emerges: no country operates in isolation. Whether an established supplier like China, a fast-rising assembler like India, or a diversified sourcing hub like the European Union, each economy functions as part of a shared system held together by the flow of electronic inputs and finished electronics goods.

Each economy plays a distinct yet interdependent role within the broader electronics value chain. The United States remains a major importer of both finished goods and inputs, with sourcing patterns influenced by trade policy and risk mitigation strategies. The European Union combines strong internal trade with a wide network of external suppliers, maintaining flexibility while facing structural dependence on countries like China. China, for its part, anchors both component sourcing and final assembly, serving simultaneously as a top assembler and a leading buyer of inputs. The Taiwan region has become a critical

supplier of semiconductors and advanced components, while several countries in Southeast and South Asia are expanding their presence as competitive manufacturing centers.

Intra-Asian trade has become the structural core of the global supply chain, with a dense flow of parts and subassemblies circulating among closely linked manufacturing economies. Rising players such as Viet Nam, India, and Mexico have gained prominence as key centers for electronics production. Their success has not come from full vertical integration, but from their ability to integrate into globally distributed production networks. Economies such as Morocco, Türkiye, and Serbia are also playing increasingly strategic roles, supported by geographic proximity and improving infrastructure.

Regional dynamics illustrate a supply chain that is globally interdependent and regionally complex. While the locations of final assembly may shift, the need for reliable access to inputs across borders remains fundamental. The challenge ahead lies in balancing domestic industrial capacity with continued engagement in international sourcing. A clear understanding of regional trade patterns and dependencies will be essential for building supply chain strategies that are resilient, flexible, and competitive in an increasingly fragmented global environment.

The global electronics trade is more interdependent than ever. Countries may adjust sourcing patterns, shift assembly operations, or pursue domestic capacity-building, but the cross-border movement of components remains essential. Any effort to reshape trade relationships or reduce reliance on specific suppliers must begin with a realistic understanding of how each region contributes to and depends on the larger global system.



What 2024 Trade Data Reveals About Global Electronics Realignment

The 2024 trade data from key economies offers a revealing snapshot of how global electronics supply chains are continuing to shift. While China remains central, its dominance is evolving. New manufacturing hubs like India and Mexico are gaining traction, and sourcing strategies are being restructured around resilience, proximity, and diversification. Regional integration, especially across Asia, is deepening. Together, these trends signal not just tactical adjustments but a structural transition in global electronics trade.

1. CHINA'S IMPORTS REACH NEW HIGHS, BUT SOURCING SHIFTS REGIONALLY

China's electronics imports hit record levels in 2024. Finished electronic goods imports rose 16.9% to \$190 billion, growing faster than electronic inputs imports, which rose 7.6% to \$678 billion. This growth underscores rising domestic demand and continued investment in technology and production.

Notably, all major gains in finished electronic goods imports came from regional suppliers. Imports from the Taiwan region doubled to \$42 billion, while Vietnam grew 62%, the Philippines 33%, Malaysia



23%, and Singapore 22%. Although imports from the U.S. grew in value, their share declined as China leaned further into regional integration.

On the electronic input side, Korea posted the strongest gain, adding \$28.6 billion and capturing an additional 3 percentage points of market share. Electronic input imports also rose significantly from Singapore, the U.S., Vietnam, the

Taiwan region, and Costa Rica, reflecting a more distributed sourcing model.

2. U.S. ELECTRONICS TRADE EXPANDS, WHILE CHINA LOSES SHARE

The U.S. reinforced its position as the world's largest electronics consumer, importing \$519 billion in finished electronic goods (up 10.4%) and \$270 billion in electronic inputs (up 16.8%). But sourcing patterns are shifting. Imports of finished electronic goods from China declined by another \$7 billion, reducing China's share to 23.2%, down from more than 47% in 2017–2018.

In contrast, Mexico emerged as a major winner, with finished electronic goods exports to the U.S. increasing by \$21 billion. The Taiwan region added \$13 billion, Vietnam \$6 billion, and Thailand \$4 billion. On the electronic input side, the Taiwan region again led with a \$15.7 billion gain (+59% in the last), while imports from Vietnam and Israel both saw increases of around 60%. China's electronic input shipments rose \$4 billion, but its share slipped as buyers diversified upstream sourcing.

3. INDIA EMERGES AS A KEY ELECTRONICS PRODUCER, STILL RELIANT ON CHINESE ELECTRONIC INPUTS

India's role in global electronics production expanded in 2024, though its growth remains underpinned by imported components. Overall



electronics imports surpassed \$100 billion. Electronic input shipments rose 16.2% (+\$9.9 billion), while finished electronic goods rose just 3.5% (+\$1.4 billion). The largest increases in finished electronic goods came from the U.S. (+\$413 million), while shipments from China declined for the third year in a row.

Despite strategic ambitions to reduce dependency, China remains India's largest electronic input supplier, with \$5.2 billion in additional shipments. However, its share dipped slightly to 59%. Shipments from the Taiwan region rose 61%, Vietnam 48%, and Korea 24%, signaling early signs of sourcing diversification. India's long-term success will depend on whether it can shift from being an assembler to a producer of critical components.

4. MEXICO DEEPENS INTEGRATION WITH ASIA AND LATIN AMERICA

Mexico's strategic role in the electronics supply chain strengthened in 2024. Finished electronic goods shipments increased by 18.1%, and electronic inputs rose 13.9%. While imports from China rose 10%, this was eclipsed by faster increases from Asian suppliers:

Korea (+53%), the Taiwan region (+52%), Thailand (+42%), Vietnam (+36%), India (+32%), and Malaysia (+28%). As a result, China's share of Mexico's finished electronic goods imports fell from 43.8% in 2018 to 33.6% in 2024.

On the electronic inputs side, sourcing from Taiwan, Korea, and Vietnam each increased around 30%. The most dramatic growth came from Latin America. Shipments from Costa Rica rose 226%, and Nicaragua climbed 140%. For the first time, China's share of Mexico's electronic input imports fell below 30%.

LOOKING AHEAD

The 2024 data points to a more multipolar and resilient global electronics ecosystem. China is still the anchor, but its role is increasingly that of a component supplier rather than a central production point. The U.S. is diversifying faster than ever. India and Mexico are gaining traction as large-scale assembly platforms. And intra-Asian trade continues to grow in complexity and volume. The coming years will test how well these new linkages perform under pressure, but the global realignment is clearly accelerating.

The Policy Disconnect: Decoupling vs. Dependency

The Policy Disconnect: Decoupling vs. Dependency

Trying to rebuild the global electronics supply chain in isolation means trading efficiency for complexity without competitiveness.

Over the last several years, geopolitical tensions, supply chain disruptions, and national security concerns have fueled a wave of calls for “decoupling” from other economies. Policymakers in the United States and other countries have proposed or implemented tariffs, export controls, onshoring initiatives, and industrial policy reforms intended to reduce reliance on strategic competitors, especially China. Nowhere is this tension more visible than in the electronics sector.

At the center of this debate is a contradiction. The political momentum behind decoupling is growing even as the cross-border dependencies deepen. The root of this contradiction lies the U.S. and the EU, most notably, have not made policy and investment commitments that would alter the basic economic structure of global electronics production. While countries may relocate final assembly or introduce new sourcing rules, they remain reliant on a globally distributed network of inputs to maintain competitiveness.

Why Full Decoupling Is Not Economically Feasible

Electronics production is inherently modular. Components are designed, manufactured, tested, and shipped across multiple countries before becoming part of a finished product. Few countries possess the full spectrum of capabilities required to produce advanced electronics

from start to finish. Even among the largest economies, full self-sufficiency is more aspirational than practical.

For example, Viet Nam has emerged as a major supplier of finished electronics, but it relies heavily on component imports from China and Rep. of Korea. India’s growth in electronics production for global markets has been built on imported parts, particularly from China, the Republic of Korea, and the Taiwan region. Mexico assembles goods for U.S. markets, often using inputs sourced from Asia. Even China, which dominates final assembly, must import a tremendous amount of parts and components to maintain production.

In this context, the concept of decoupling is often based more on political signaling than on economic strategy. While it may be possible to reduce exposure to a specific country in one part of the value chain, doing so across all layers of production introduces cost, complexity, risk, and strategic distraction. In the absence of sound economic strategy, decoupling from one country may simply result in greater dependency on another, which itself depends on multiple countries.

Calls for domestic production or reshoring often underestimate the investments required to replicate mature supply chains. Building semiconductor fabs, component factories, and specialized testing facilities requires years of capital deployment, workforce development, and ecosystem coordination. In the short to mid term, the result is likely to be higher prices, longer lead times, and reduced flexibility.



Scale is what makes global electronics viable. Fragmenting that scale undermines both cost and capability.

These costs are compounded by the loss of scale economies. Electronics production is highly dependent on yield efficiency and volume-driven cost structures. Global supply chains have evolved to maximize efficiency and minimize duplication. Creating multiple, parallel systems across different geographies introduces redundancy, but not necessarily resilience. Without sufficient demand to support the expanded capacity, these efforts risk becoming economically unsustainable.

Moreover, efforts to insulate one country from another may have unintended consequences. Export controls or restrictions can push competitors to accelerate their own domestic capabilities. Tariffs may alter trade flows but not necessarily reduce reliance. As companies adjust to new incentives, they often find alternatives that preserve efficiency while appearing to satisfy policy goals. As a result, government regulations tend not to increase domestic production, especially in the absence of meaningful public sector incentives and investments.

In practice, supply chain reconfiguration operates along a spectrum. Total independence is rare to impossible, while partial diversification is optimal and far more common. Most strategies, accordingly, focus on reducing risk without giving up the benefits of

global integration. These strategies acknowledge that modern electronics production depends on flexibility, responsiveness, and access to specialized suppliers across multiple regions.

Governments can play a constructive role by encouraging diversification, supporting workforce development, investing in infrastructure, and easing regulatory barriers. But framing decoupling as the ideal end state risks overshadowing the more pragmatic and important objective: building supply chains that are more agile, adaptive, and strategically sourced.

The Risk of Misalignment

The growing disconnect between policy narratives and economic realities poses real risks. If governments design industrial policy based on assumptions of full decoupling, they may misallocate resources, distort markets, or create unanticipated bottlenecks. Worse, they may undermine trust among trading partners and weaken the very networks needed to sustain long-term competitiveness.

A more grounded approach begins with recognition of how global electronics supply chains actually function. This means understanding the distinction between finished goods and inputs, the unique position of intra-Asian trade, and the layered dependencies that define today's production systems.

Efforts to improve resilience, reduce vulnerability, or strengthen national capacity must start from this baseline. Otherwise, the disconnect between policy and practice will continue to widen, with consequences for innovation, affordability, and global economic stability.

Strategic Implications for Industry & Policymakers

Strategic Implications for Industry & Policymakers

The global electronics trade depends on supply chains that span continents and connect thousands of firms, countries, and specialized inputs. Economic interdependence is

must treat supply chain architecture as a core element of business strategy rather than just a logistical or procurement function. Recent disruptions have exposed the risks of



not a vulnerability to be eliminated; it is a strength to be understood and strategically managed. For both private-sector leaders and public policymakers, the challenge is not to retreat from globalization, but to engage it with greater foresight and coordination.

For Industry: Rethinking Supply Chain Design

Companies that rely on electronics inputs and production capacity

single sourcing, limited visibility, and excessive reliance on just-in-time practices.

Improving resilience does not require duplicating entire operations. Instead, overlapping supplier networks can offer the flexibility needed to withstand future shocks. This may involve maintaining dual sourcing across geographies, increasing local procurement of critical parts, and building stronger relationships with upstream vendors.

Geopolitical awareness must also become a core business competency. Trade rules, export controls, and

diplomatic shifts can alter sourcing and sales strategies with little warning. Companies must monitor these developments and integrate them into planning, contracts, and risk frameworks. In a very real way, government intervention has become the fastest growing cost driver for the global electronics industry.

Cost control, therefore, remains essential. In many cases, attempts to localize production have increased expenses without significantly improving reliability. The goal is not to abandon global sourcing but to make it smarter, more resilient, more responsive to security concerns, and more adaptive to disruption.

For Policymakers: Focus on Capacity, Coordination, and Competitiveness

Governments play a different but equally vital role. Recent efforts to strengthen supply chains have focused on domestic production goals, reshoring incentives, and trade enforcement. While these tools are important, they must be supported

by sustained investments that build long-term industrial strength.

FIRST, INVEST IN CAPACITY.

Robust electronics manufacturing requires skilled talent, modern infrastructure, research capabilities, and upstream assets such as advanced packaging, printed circuit boards, and test and measurement systems. Support must extend beyond final assembly or select inputs to include all critical components.

SECOND, IMPROVE COORDINATION.

Electronics supply chains cross borders and jurisdictions. Policy fragmentation raises costs and slows production. Regional frameworks, bilateral agreements, and alignment on standards can reduce friction and create a more predictable trade environment.

THIRD, PRESERVE COMPETITIVENESS.

A country's influence in the global supply chain is tied to the strength of its firms. Innovation, regulatory efficiency, and access to foreign markets are essential to ensuring domestic producers can compete effectively.

Resilience in electronics trade will not come from isolation. It will come from clarity, cooperation, and a strategic view of how global integration can be shaped to support long-term preparedness without sacrificing efficiency.





Shared Risk Requires Shared Strategy

No single country or company can control the electronics supply chain. The complexity and scale of global production make complete self-sufficiency unrealistic. Resilience requires a more strategic approach that identifies critical chokepoints, builds trusted partnerships, and focuses investment on areas with the highest strategic value.

Governments can prioritize sectors where disruption would pose the greatest regional risk, such as semiconductors, telecommunications infrastructure, defense, and space. They can also invest in capabilities that are difficult to replicate,

including high-purity materials and specialized fabrication tools.

For companies, resilience means diversifying suppliers, securing access to high-value inputs, and developing operational flexibility that allows for rapid shifts when disruptions occur. Businesses that understand their exposure and build agility into their networks will be better positioned to withstand volatility and lead in competitive markets.

Resilience in electronics trade will not come from isolation. It will come from clarity, cooperation, and a strategic view of how global integration can be shaped to support long-term preparedness without sacrificing efficiency. Those who succeed will be the ones who manage interdependence effectively.

Endnotes

¹ Unless otherwise specified, all figures in this report reflect cross-border merchandise trade. Domestic production that remains within a country's borders is excluded from presented figures. As a result, countries with substantial domestic production such as the United States, China, and Japan tend to have larger electronics sectors than trade data alone would suggest.

² EU data in this analysis exclude trade between member states to avoid overstating the EU's role in global electronics trade flows. However, because figures are based on individual country import data, intra-EU trade is still reflected in global totals to maintain consistency with standard international trade statistics. In all tables, intra-EU trade appears under the "other" category.

³ China in this analysis includes the combined imports of mainland China, Hong Kong, and Macao. As with the EU, intra-regional trade among these three economies is excluded from China-specific totals but included in global figures to ensure consistency with world trade statistics.

Appendix A: UN COMTRADE

This analysis relies primarily on international trade data sourced from the United Nations COMTRADE Database, the most comprehensive global repository of official trade statistics. Maintained by the UN Statistics Division, COMTRADE collects and harmonizes trade data reported annually and monthly by national statistical authorities across more than 150 countries.

COMTRADE records bilateral trade flows, capturing both imports and exports of goods between reporting and partner countries. Each record includes detailed classification codes, reported values (in U.S. dollars), and quantities (when available), based on internationally recognized systems such as:

Harmonized System (HS) – used to classify traded goods at the six-digit level, with national extensions often going to 8 or 10 digits.

Standard International Trade Classification (SITC) – used for historical comparisons and broad sectoral analyses.

This report primarily uses data based on the HS 2017 classification system at the six-digit level, which provides sufficient granularity to isolate specific electronics products and components.

Data were retrieved directly from UN COMTRADE and processed using standardized filters for product codes, years, and country groupings (e.g., intra-EU trade, major Asian exporters).

While COMTRADE provides robust and internationally comparable data, several limitations should be noted:

Reporting Gaps: Some countries lag in reporting or provide incomplete data, particularly for recent years.

Differences in Classification: National variations in applying HS codes may affect comparability across countries.

Valuation Differences: Imports are typically reported as CIF (cost, insurance, and freight), while exports are reported as FOB (free on board), which may cause slight asymmetries.

Intra-Corporate Transfers: In sectors like electronics, where companies operate across multiple countries, trade flows may reflect internal shipments rather than market-based exchanges.

Despite these limitations, COMTRADE remains the most reliable and widely used dataset for analyzing global trade patterns in electronics and related components.

Appendix B: Methodology

Unless otherwise noted, the analysis in this report is based on import data as reported by destination countries. Imports are generally considered more reliable and complete than exports due to their role in customs and tariff enforcement. Using import data allows for consistent cross-country comparisons and minimizes duplication in global totals.

This report uses data through 2023, which represents the most recent year for which comprehensive trade statistics are widely available across countries. In select cases, more recent data may exist, but it is not yet consistently reported across economies or product categories. Using 2023 as a common reference point ensures comparability and reliability across the global dataset.

All data presented reflect annual trade flows in nominal U.S. dollars. In cases where multiple reporting systems exist, mirror statistics or alternative sources were cross-checked to ensure consistency. Aggregate values for electronics inputs and finished goods were derived by grouping relevant HS codes into two broad categories:

Electronics Inputs: Includes semiconductors, sensors, circuit boards, connectors, displays, wiring harnesses, and other components essential to electronics assembly.

Finished Electronics: Includes consumer electronics (e.g., phones, computers, televisions), as well as industrial, medical, and telecommunications equipment.