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## Semiconductors' crisis: The great supply chain disruption

*When the new lifestyle triggered by the Covid-19 lockdown restrictions boosted the demand for consumer goods, it burst a crisis for microchips and other semiconductors, that now requires seamless logistics plans to keep factories working – and products available in many industries.*

Specialized industries' supply chains are facing one of the greatest global crises of the Technology Era: the war for semiconductors, conducted specially by the automotive and high-tech consumer industries.

The conflict's great catalyst was the Covid-19 pandemic, which shut down auto plants while skyrocketed the global consumption of household electronics. But the problem's origin is prior to the global lock-down.

### The inception of the crisis is prior to the pandemic

Analyzing the market before 2020, we can see that the crisis was not born as a result of the pandemic: Intel, one of the leaders among microchip manufacturers, was revealing signs of problems supplying processors due to changes in its process of manufacturing **since 2019**.

The industry's giant, despite having one of the largest manufacturing infrastructures and having one of the most appealing research and development funds in the sector, tried to become a mere foundry for other semiconductor companies.

Unfortunately, the effort failed.

Thus, while Intel struggled to deliver all the processors demanded by the market, the world underwent drastic cultural changes in the pandemic, such as the adoption of remote work, online education, and a boost in digital entertainment, **generating a new tsunami of demand for semiconductors**.

### The heart of the problem:

#### market concentration

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In 2020, Intel, Samsung and the South Korean SK hynix concentrated 33% of a market that sold 466 billion dollars in merchandise that year, according to an evaluation by the consulting firm [Gartner](#).

On the other, we have those few giants concentrated in Asia – the first region in the world strongly impacted by urgent actions to control the spread of Covid-19.

With this, all the world production of electronics that use microchips was affected.

*The consulting firm [Deloitte](#) estimates that 60% of all the microchips are manufactured in Asia, mainly in South Korea and Taiwan – country of origin of the Taiwan Semiconductor Manufacturing Company (TSMC), the giant in the sector.*

*According to [data](#) from one of TM Lombard economists, Rory Green, the two Asian nations are responsible for 83% of the world production of processor microchips and 70% of memory chips.*

### The conflict with the automotive sector

With automotive plants closed in the first months of the pandemic, semiconductor production was able to focus on meeting the new consumer electronics demand – for some time.

According to a study by [McKinsey](#), in 2019 Automotive OEMs spent around 41 billion dollars in the purchase of semiconductors, but the pandemic depressed the market. Instead of growing around 6% compared to 2019 as expected, the sector's demand contracted by almost 10%.

On the other hand, the demand for semiconductors for computers increased by 11%. Before the pandemic, the forecast for the sector was for zero growth.

### The automotive sector and the semiconductors

- A car can carry 100 electronic components and between 20 to 40 microcontrollers – that represents 35% of the cost of the vehicle.
- The automotive industry consumes around 10% of all the microchips sold in the world.
- Europe consumes almost 40% of the semiconductor supply.
- The crisis may grow more with the increase in demand for electric vehicles.
- The German automotive industry faces the worst semiconductor supply shortage in 30 years.
- More than 80% of the companies in the sector were affected.
- Hit hard by the lack of semiconductors, Mexico's manufacturing experienced a 27% drop in July 2021 compared to July 2020 (the rise of the pandemic).
- The most affected production lines were those linked to light trucks (pick-ups) and utility vehicles.

[Alexander Katsouris](#), director of the [EP Automotive vertical at Europartners Group](#), discusses the specific challenges of the automotive industry related to the semiconductor crisis, today and in the future.

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*"On the one hand, vehicle manufacturers are facing great challenges with sourcing and the supply chain of microchips for their current production. At the same time, they must accelerate designing ideas for their future models to reduce the number of chips used in each unit and to increase the necessary technology advancements to lead the markets of 'tomorrow'.*

*The development of increasingly electronic, more interactive, more environmentally friendly and smarter vehicles is incessant.*

*While we recognize that large tier companies in the sector are committed to investing and producing more resources to support the supply chains of various OEMs, we know that higher production lines will remain under pressure throughout 2021 and 2022, causing ongoing 'stress' in distribution channels, to sustain competitiveness among OEMs.*

*Thus, just-in-time logistics solutions, urgent and other types of service focused on delivering in the correct time required by automotive customers will be inevitable in the planning of each supplier".*

## Crisis can go beyond 2022

As Alexander Katsouris mentioned, the semiconductor distribution problem may extend all through the next year.

In August 2021, nearly 20 auto plants in North America and Europe have stopped or reduced their production of vehicles and auto parts due to a lack of components, according to the [Seraph](#) consultancy.

Semiconductor shortages have affected auto manufactures in Michigan, Kentucky and Kansas (in the United States), Mexico and Germany.

*"In one hand, German still relies a lot on locally produced inputs, and works close to Asian markets", comments [Rouven Blau](#), Europartners Group German routes development manager.*

*"We cannot ignore the critical raw material supply chain situation, since it is endangering the companies' development in technology", he remembers, "but in other hand, one of the biggest Tier 1 companies in the country, Robert Bosch, has already determined their future development on the semiconductor chip market.*

*I think other companies will follow them, seeking to be more independent to secure their customers' supply chains. Maybe soon we will see strategic alliances of companies, sectors or countries", Rouven foresees.*

Regarding a probable deadline for the crisis, while Ford CFO [John Lawler](#) told investors that he sees the microchip problem spreading into early 2022 and Ford's president in South America, [Daniel Justo](#), said the crisis is diminishing as some bottlenecks

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## Common problem of industries that use semiconductors:

### mismanagement of stock

The explosion of demand by the consumer electronics and automotive industries, coupled with another parallel crisis –that of ocean freight – disclosed some failures:

- in the production chains, completely unprepared for a forecast change of this magnitude,
- in the consolidation and management of emergency stocks.

**[Also read: how to prevent your cargo from becoming critical?](#)**

A chip can take [three months and 700 processes](#) to be manufactured. Any failure generates a butterfly effect that illustrates well the current crisis. In addition, it is important to have a comprehensive vision of the needs of a production, since other materials, such as [steel and plastic](#), are also at risk of disappearing from the market due to global production and distribution problems.

Taking a long-term comprehensive view of inputs needs to a strategic plan, Toyota has been largely unscathed by the global shortage of semiconductors, before getting hit by the crisis – nevertheless, a few months after most of their competitor OEMs.

After the triple-disaster in 2011, [the Japanese carmaker came up with a business continuity plan \(BCP\)](#) that required suppliers to stockpile anywhere from two to six months' worth of chips for this OEM, depending on the time it takes from order to delivery.

## A strategic ally in logistics

### can take you through the semiconductor crisis

Relying on a strategic partner in logistics, such as Europartners Group, gives you the possibility of having at hand a solid portfolio of premium services that can be combined to build a plan tailored to your needs.

From an initial advisory session, we start to learn your most specific requirements, develop a diagnosis, and offer "white glove" service options: extremely sensitive to your delivery times and to the high value of your cargo, providing you total visibility and uninterrupted support.

An example of one of our clients' [success stories](#) was having our hand carry service transporting, safely and in timely, semiconductors from Malaysia to Mexico.

In addition to Asia, for scheduled or urgent cargo, we are specialized in inbound and outbound solutions from and to all the Americas and Europe, mainly with premium air services, but also with the ability to design multimodal plans tailored to your needs.



If the semiconductor and microchip crisis extends into the first –or even last– months of 2022, we will equally work hand in hand you to keep your supply chain moving. [Contact us today.](#)

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We are Europartners Group. Your best strategic ally in logistics.

## FUN FACTS

-  Technically, semiconductors are the metalloids of the periodic table. They are natural elements with less power to conduct electricity than metals (such as copper), and more than gases.
-  In our day to day, they're the transistors and integrated circuits known as chips and microchips that are part of the "brain" of our smartphones, of basically all the electrical appliances in our homes, smart TVs, tablets, laptops or desktops, and also of the most modern automobiles.

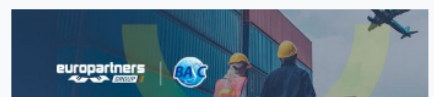
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