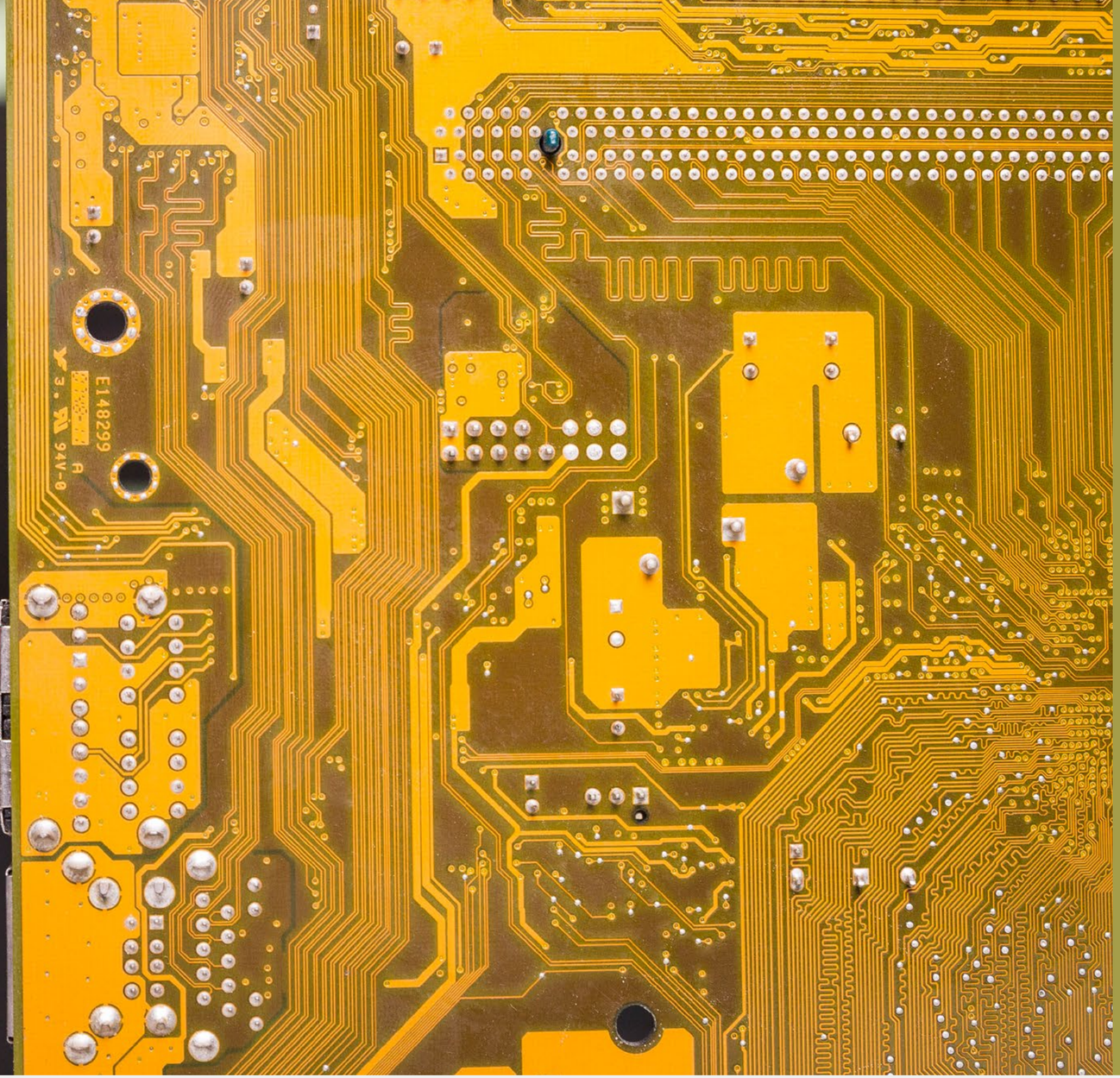
Imagen. **Freepik, 2025.**

Semiconductors Industry - New Area of Mexican Success?



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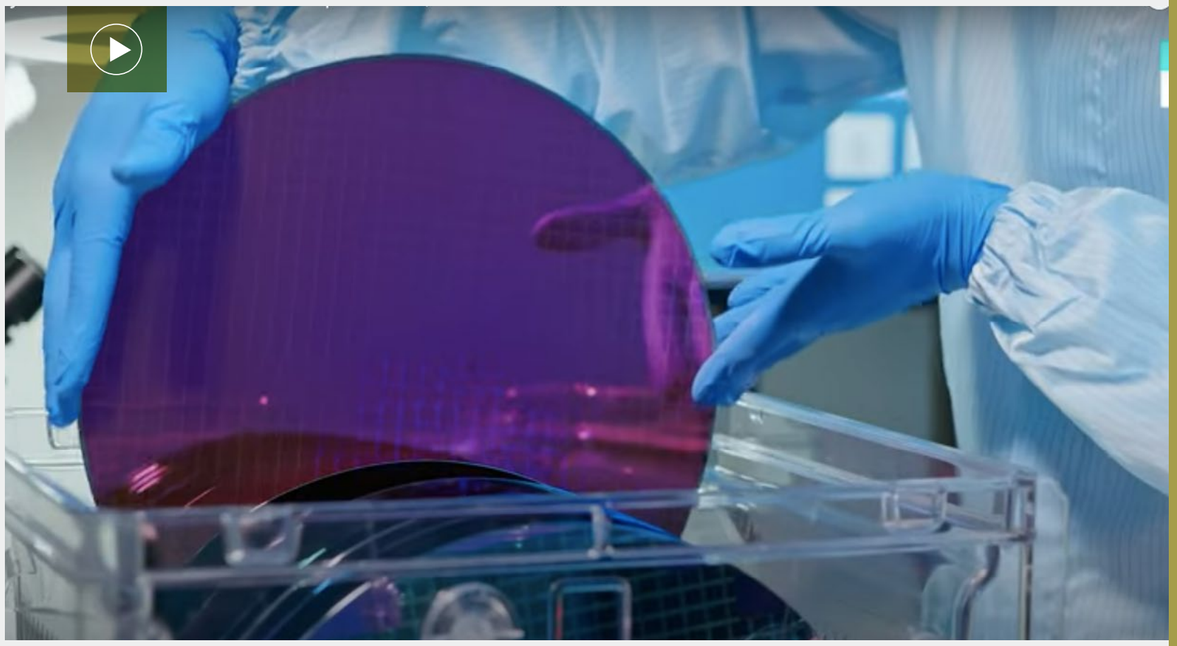
THE SEMICONDUCTOR INDUSTRY

Semiconductors are fundamental components of modern electronic devices such as cell phones, televisions, and computers. Their manufacturing is highly influenced by automotive, consumer electronics, telecommunications, and industrial equipment industries.

According to a Statista survey, the semiconductor industry can be divided into four groups of products: integrated circuits, optoelectronics, discrete semiconductors, and sensors & actuators (Statista, 2024). Integrated circuits (ICs) are manufactured using several interconnected devices, on the other hand, optoelectronics are known devices used for light-sensing and -emitting functionalities. Discrete semiconductors are the basic type of semiconductors, often built using a single semiconductor device as diodes or transistors. Lastly, sensors and actuators are semiconductor devices made for measuring physical, chemical, and biological properties such as temperature, pressure, and acceleration (Statista, 2024).

In 2023, the global semiconductors market value was estimated at $503.3 billion dollars (USD) and it is expected to grow at a stable rate of 8% by 2029. The integrated circuits were the segment with the highest share, representing 81% of the semiconductor market **[Slide 1]**. They are forecasted to be the segment with the highest growth expected (of 13% per year) in the semiconductor market (Statista, 2024).



Video: **Why Are Semiconductors So Important?**
Source: **Grid, 2022.**

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The Semiconductor industry is dominated by several multinational companies. Some of them, like Samsung, Broadcom, and Micron provide semiconductors classified in more than one of the segments described above, while others specialize in one particular segment **[Slide 2]**. The integrated circuits production is led by: Intel, Nividia, Qualomm, Analog Devices, and SK Hyniks, while Infineton, Diodes, Onsemi, Vishay and Nexperia dominate the discrete semiconductors production. The most important producers of optoelectronics are Osram, Sonny, Sharp, and Onsemi, while Texas Instruments, ST, NXP, and Aphenol are main actors of the sensors & actuators segment (Statista, 2024).

Video: **Inside The World's Largest Semiconductor Factory - BBC Click.**
Source: **BBC Click, 2019.**

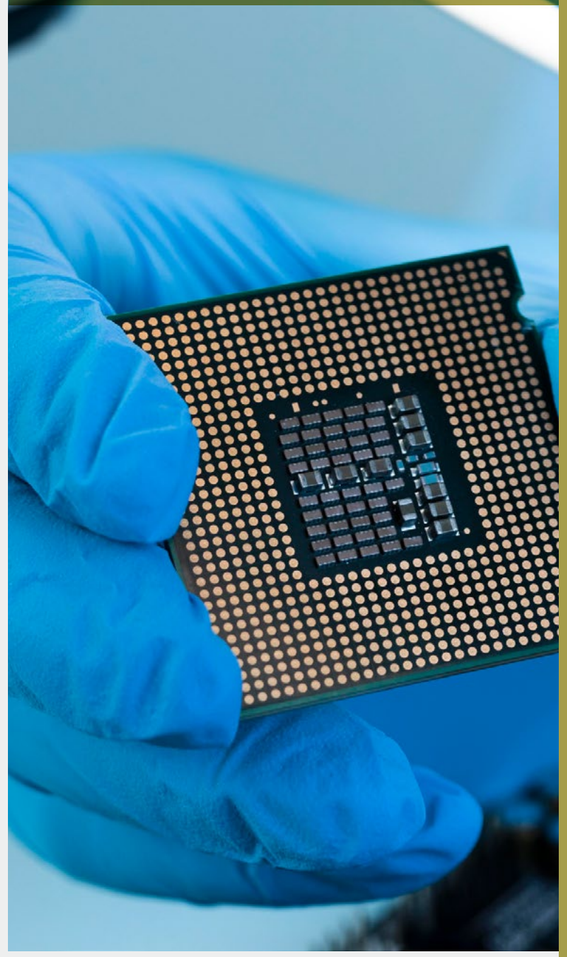
The manufacturing of these products is concentrated in Asia, being Taiwan the world's leader of the semiconductor industry with around 80 manufacturing plants with a significant production. It is home to Taiwan Semiconductor Manufacturing Co. (TSMC), leader in the raw semiconductor manufacturing, accounting for 50% of the world's production.

Unlike the above-mentioned manufacturers, TSMC produces semiconductors for many other companies, such as Nvidia or Qualcomm. South Korea is the second most important manufacturer due to Samsung's and SK Hyniks presence and following the list is Japan, holding over 100 plants owned by Japanese, American, or Taiwanese firms. China is the fourth largest Asian nation in this industry. Although the country has only 81 manufacturing plants, its massive manufacturing sector has made China one of the largest markets for semiconductors is the world (World Population Review, 2025).

The USA is the only non-Asian country in the Top 5 world semiconductor producers with 95 manufacturing facilities; the country possessed approximately 12% of the world's global chip manufacturing capacity (as of 2021). However, in 2023, US-based companies held approximately 50.2% of the total semiconductor market share (SIA, 2024) **[Slide 3]**. This difference may be explained, among other reasons, by the fact that many US-based companies own and operate semiconductor manufacturing plants in other countries, such as Japan (World Population Review, 2025). Other countries that stand out in semiconductor manufacturing are Israel, the Netherlands, Malaysia, the United Kingdom, and Germany (World Population Review, 2025).

In 2023, integrated circuits (HS8542) were the world's 4th most traded product, accounting for a total trade of $910 billion dollars (USD). The list of exporters was headed by Taiwan, China, South Korea, Malaysia, and Singapore. The same countries (but in different order) were the top importing nations **[Slide 4]**. The global trade of other semiconductor devices (HS8541) reached 155 billion dollars (USD) in the same year. China, Malaysia, Japan, Germany, and Vietnam were the top exporting countries, while the US, Hong Kong, China, Germany, and India were the top importing ones **[Slide 5]**.

The market in China is predicted to grow by 11% between 2023 and 2029 and reach a revenue of 280 billion dollars (USD) in 2029 (Statista, 2024).



Source: **Freepik, 2025.**

INDUSTRY TRENDS

According to the Statista report, the expected rapid growth for the industry in the next years is based on three sets of factors. The first one is related to the world's GDP growth. The higher the GDP, the higher the income. Higher income incentives people to spend more on electronic devices such as smartphones, laptops, and home appliances, which require these advanced chips.

The second one is based on growing demand for data centers. The increase of cloud storage (both for companies as well as governments and individuals), the rapid growth of artificial intelligence, and the increasing machine learning capabilities present the industry with new challenges, higher demand, and thriving innovation.

Finally, the changes in the automotive industry, which focus on growing popularity of electric vehicles fuel strong demand for the high-end chips. It is expected that by 2030, only the revenues of automotive semiconductors will reach 150 billion dollars (USD) annually (Statista 2024). These findings are sported by the results of company surveys which show that automotive, wireless communication, and cloud computing / datacenters are the most important drivers for increasing revenue in the semiconductor industry (Statista 2024) **[Slide 6]**.

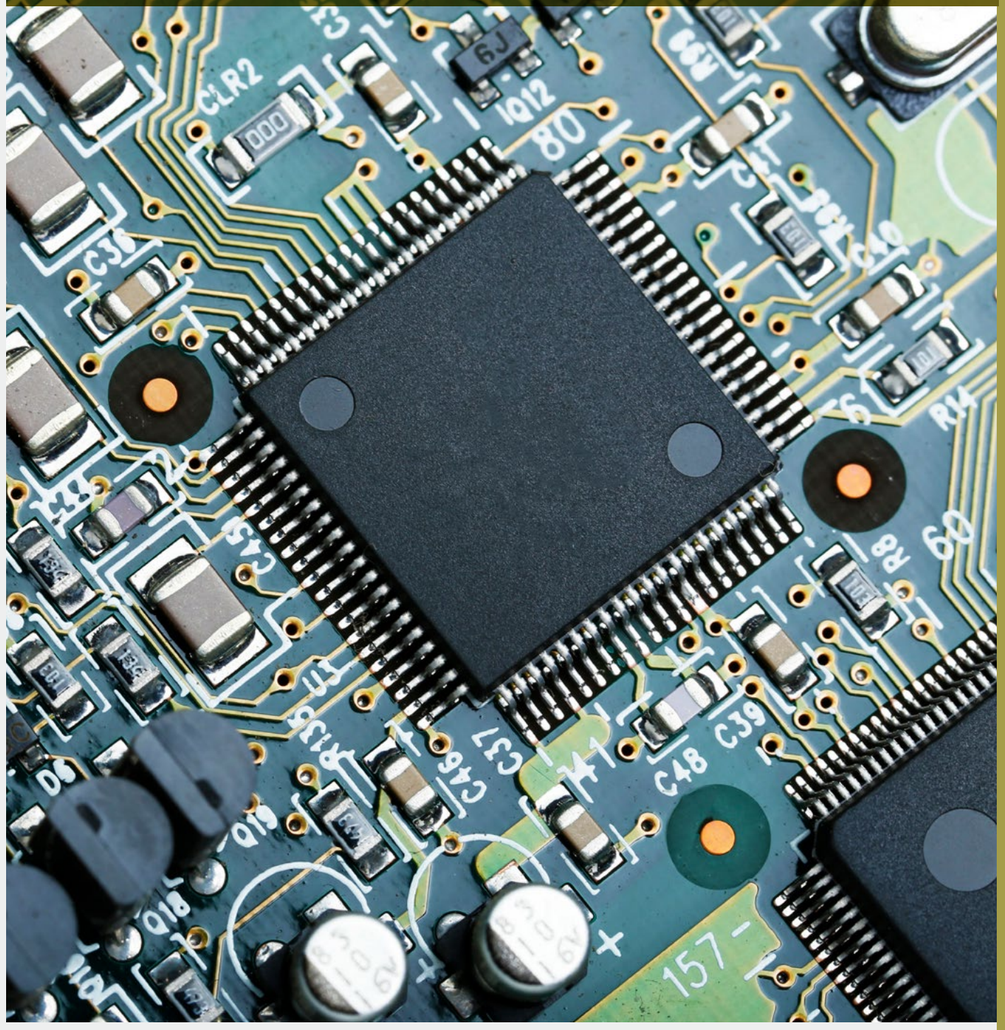
As the industry develops and the semiconductor demand grows, their functionality in several growing trends is evident. First as 5G breaks through, its appliance in the semiconductor industry enables faster data processing changing global connectivity. Subsequently Artificial Intelligence (AI) adoption allows enterprises to strategically embed AI-centric semiconductor chips, with notable benefits such as cost savings, enhanced performance and accelerated production. The internet for things (IoT) has also driven demand for semiconductors that use sensors to contribute to data, having appliances in multiple products and industries. Lastly, the gradual shift of automotive industry to autonomous vehicles is urging semiconductor demand, particularly for silicon chips that support self-driving cars and several of their components (Statista 2024 and Mordor Intelligence, n.d.).

THE INDUSTRY IN MEXICO

Of the four segments that form the semiconductor industry, Mexico primarily produces integrated circuits **[Slide 7]**. The rapid growth of the technology industry in Mexico in recent years, has increased demand for integrated circuits, positioning the country as a key player. By 2029, Mexico's integrated circuit industry annual revenue growth is estimated to be 8.29%. considering memory integrated circuits and logic integrated circuits to achieve the highest growth **[Slide 8]** (Statista, n.d.). Two key trends influence the growth of the industry in Mexico; the first one is that consumer preference for more compact and portable devices increases the demand for smaller and more efficient integrated circuits, while the second one is the increasing adoption of artificial intelligence and machine learning technologies, as both require high-performance integrated circuits (Statista, n.d.).

Semiconductor production in Mexico is concentrated in three main regions: the Northern Border (Baja California, Chihuahua, Nuevo León, and Tamaulipas), the Bajío (Aguascalientes, Guanajuato, Querétaro, and Jalisco), and the area of influence of Mexico City (Puebla, Estado de México, and Mexico City). Large international companies operate in each region: Texas Instruments operates in Aguascalientes, Skyworks in Baja California, and Intel in Jalisco (MexicoIndustry, 2024).

In 2023, the revenue of the integrated circuits market reached $32.11 billion US dollars (Statista, n.d.).



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The Bajío region houses two Mexican companies, BigBang (in Aguascalientes) and QSM (in Querétaro), (Ruiz, 2025). According to FUMEC (Mexico-United States Foundation for Science), 12 states have the potential to further develop this industry, the list includes Aguascalientes, Baja California, Chihuahua, Jalisco, Querétaro, and Tamaulipas, while Mexico City, Durango, Guanajuato, Nuevo León, and Puebla showcase significant development potential (MexicoIndustry, 2024) **[Slide 9]**.

According to Trade Map in 2023, Mexico exported products in the integrated circuit category worth $3.39 billion (USD), having the United States as main export destination, followed by China and the European Union. Discrete semiconductor exports in the same period reached a value of $621.2 million (USD), of which 93 percent was destined for the American market (TradeMap, 2023).

Jalisco is home to the first semiconductor factory since 1970 and today concentrates almost 70% of manufacturing companies in this sector (in addition to Intel, Bosch, Infineon, and NXP) (Ruiz, 2025).

Imagen. **Freepik, 2025.**

THE DECISION

According to Deloitte researchers, there are some pertinent conditions for Mexico to become a relevant player in the semiconductor industry. First, Mexico needs to develop human talent and investment in R&D. The government must attract Foreign Direct Investment (FDI) to invest in infrastructure, particularly in industrial parks. Finally, Mexico needs to develop resilient supply chains and strengthen strategic alliances between academic centers, research organizations, and already established companies in the country (Deloitte México, 2024).

In February 2025, the Mexican President announced the *"Kutsari"* program. The program is part of "Plan Mexico" whose objective is to promote the design and manufacturing of semiconductors in Mexico, initially for cars, household appliances, and medical equipment.

According to *"Kutsari"*, by 2027 three design centers will be opened in Puebla, Jalisco, and Sonora and the manufacturing facility will be constructed by 2029. *Kutsari* is the response to the association agreement between the US and the Mexican governments focused on exploring the opportunities in semiconductor supply chains, as a part of Joe Biden government´s initiative called "Western Hemisphere Semiconductor Initiative".

This US initiative provides a governmental investment to the growth of the American microprocessor industry with the help of strategic partners worth at least 52 billion dollars (USD) (Gonzalez, 2025). From that perspective:

- Which are the competitive advantages of the Mexican semiconductor industry?
- Can the Mexican semiconductor industry be considered internationally competitive?
- Are there any kind of semiconductors in which Mexico should concentrate its exports?

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